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SAMENA TRENDS

FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

Distinguished New Leadership of SAMENA Council

NECESSITATING CYBERSECURITY

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Necessitating Cybersecurity

While we were working hard to master use-cases for 5G, mastering SARS-CoV-2 has suddenly caused an abrupt priority shift, bringing among other things cybersecurity to the forefront of our mitigative approaches.

Cyber threats, almost literally speaking, are similar to Coronavirus-like attacks, which have recently emerged all around the world in the form of an unimaginable pandemic. By the time this edition of Trends is out, it will have taken more than two months for the world to realize that an "attack" had occurred. What follows next is the challenge of responding to that occurrence, which will have taken many countries and numerous industries, including the Telecom Industry, by a surprise.

Responding to new viruses, whether cyber or biological, requires urgency, new approaches, a new knowledge base, an all-integrated emergency management strategy, complemented by introduction of a myriad of on-the-ground physical changes. Among the swiftest actions taken by organizations in reaction to the current health crisis, remote working and remote learning have become the new norms, almost overnight. However, there is a major challenge that this approach inherently carries: This places a much greater responsibility on the organizations as well as the employees, and students, to safeguard information and data; both their own and the organizations'. Everything in the name of Coronavirus, causing both panic; opportunistically distracting end-users; and exploiting the unwary users online, is possible. Exploitative acts range from overpriced sale of sanitizers to phishing emails and more malicious acts, including harvesting user log-in information and exploitation of children and young people (CYP) online.

It seems most logical to practice and to communicate to industry peers that, in the wake of Covid-19 concerns, just as personal and environmental hygiene is the single most important thing one can ensure, a similar level of "hygiene" is required in accessing and using data online. Any careless attempt to learn about the virus or its cure can actually lead the user astray, causing an altogether different type of infection.

Mobile networks have made it possible to utilize medical data in a targeted manner by leveraging mobile technologies and thus has contributed toward raising awareness as well as to help prepare the general public on how to curtail or slow down the spread of pandemic infections. Thus it is now more important than ever before that cybersecurity take a central role in our strategy to not only protect corporate networks, or digital infrastructure from intrusion, or ward off against other forms of manipulation of systems or humans through digital means, but also to protect the general public against falsehood.

Discernment of real news from fake and propaganda-driven information, or to be able to identify truthful information carrying deceptive or malicious intent, is a major challenge that every single one of us has been exposed to, and is witnessing first-hand as we deal with the prevailing real-life global health crisis. Undoubtedly, the complexity of the current digital ecosystem, access to the networks, and numerous uses of the communication

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

infrastructure, inherently make networks and data security a daunting challenge. Recall that the modern influx of data, and the most suddenly caused directly or indirectly due to current health concerns, is not just driven by the users, but by partners, third-party service providers, and just about anyone having access to and using the Telecom Operators' networks.

However, cybersecurity measures, if taken coherently, have the power to sustain positivity and hope, and both curtail and fight false information that feeds negativity and hopelessness in the wake of real-life challenges, such as the new Coronavirus. With our ripening 5G capabilities and technologies, including Artificial Intelligence, we certainly have sufficient means and tools available to us but we need to work toward speedily implementing (and not just discussing) identifiable and practicable cybersecurity measures. The Internet's information pathways, just like our respiratory pathways, must be kept clean for their intended, positive purpose of developing and sustaining the nascent digital economy.

5G's potential to help fight isolation that Coronavirus has lately caused with meaningful connectedness in the current global situation, and to create a sustainable digital society in the long run, will only be made timely possible by ensuring integrity of data, protecting it against all imaginable misuse and irrelevant access. While Telecom Operators are relatively new to realizing the ever-more-complex challenge of protecting and reacting to security threats on their networks, and threats that can both physically and emotionally threaten the well-being of network users, the challenge of security has a direct bearing on the Operators' ability to create and foster trust-building in the digital space, fulfill both ICT and health policy and regulatory demands, for example, and conduct business and investment planning in a sustainable manner, while satisfying their own shareholders to approve further infrastructure investments.

Ultimately, all of this has a direct impact on our collective ability to fulfill the Sustainable Development Goals (SDGs), including global health objectives set forth under SDG 3. These are a matter of important to companies, governments, and institutions alike. Through state-level incentivization of cybersecurity implementation, many co-related issues can be addressed, such as the online safety of young citizens and children, and proliferation of digital services in the financial, education, and medical sectors.

While the healthcare sector tries to find cure for SARS-CoV-2, we as Industry can help prepare and manage many aspects of the Coronavirus challenge by viewing cybersecurity not as a novel issue but rather by making it part of our own governance, risk management, and continuity framework, as well as by promoting the same level of urgency for security aspects to be in place to the healthcare sector, financial sector, travel and tourism sector and, most importantly, the information and media sector - the latter holding the power to make or break our inner strengths to deal with challenges like the Coronavirus pandemic.

Lastly, as our children remain home and continue their learning, they are more exposed to online threats even under our own eyes, and it is important that, while keeping the health protection aspect of the current health situation in mind, we also remain fully cognizant of the child online protection aspect as well.

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مستقبل صناعة البث
في الشرق الأوسط وشمال افريقيا

SAMENA Council's New Leadership

Following SAMENA Council's Convergence to Bahrain 2020 conference, which delved deeply into 5G&IoT and the regional digital vision, the recent election of Mobily and Arabsat to the Council's Board of Directors and unanimous re-election of stc Group and Batelco to chair and vice-chair it, has set new expectations of co-operation and collaboration between the Satellite and Terrestrial Operators in view of regional digital development plans, leveraging the 5G and allied technologies.

SAMENA Council's Board of Directors, earlier comprising solely Telecom Operators, sees a large space available for collaboration with Satellite and the great business cases that exist for both terrestrial and satellite players to explore together. Satellite and Terrestrial Operators' collaboration has a strong potential to create and multiply cross-industry collaboration, partnerships, and to materialize 5G technology use-cases, which can help justify the expedience and investments required in the adoption and proliferation of 5G.

The need to ensure sustainability of the industry has brought together telecommunications service providers and various stakeholders along the digital value-chain to collectively investigate how the speed of change is affecting the pace of business transformation. The sustainability of network operators is key as the providers of the digital infrastructure, which supports all digital and related economic activity. While trying to understand the impacts on their businesses from these developments and identifying the right digital transformation strategies, regulatory authorities and governments are struggling to adjust legacy regulatory and economic frameworks to the new technology- and market realities. A lot of questions are surfacing regarding the disruption caused, including what to do about cross-border data flows, taxation in the digital economy, spectrum availability, 5G and Digital Services use cases and much more.

On his first-time election to the Board, Arabsat's President & CEO, Mr. Khalid Ahmed Balkheyour, stated: "Communications technology today has the ability to improve people's lives and provide them with access to information and opportunities. As an industry (Terrestrial or Satellite), we have a responsibility to grow, evolve and provide real solutions for the people's needs. I believe the Council will provide a strong, unified voice in our discussions with governments , stakeholders, and regulators, as we all work together to deliver the best possible level of service for the people and markets of this region."

Upon being newly elected, Mobily CEO Mr. Salman Badran expressed the appreciation on having been re-elected as a member of SAMENA Council's Board of Directors representing Etihad Etisalat Mobily. Mobily's CEO mentioned the importance of SAMENA Council in enabling harmonization among stakeholders and in facilitate growth of the digital economy via proper collaboration in setting relevant policies, strategies, and regulations of the ICT sector.

To bridge the gaps in understanding of different stakeholder issues, and to align policy, regulatory, and private-sector priorities, SAMENA Council brings together different stakeholders and focuses on enabling and facilitating the proliferation of advanced Digital Services, addresses challenges in relation to Data Regulation, drives the harmonization of Operators' positions on Spectrum Management, and draws Regulators' attention to excessive Industry Fees and Taxation.

The current leadership of SAMENA Council consists of stc Group, Batelco, Etisalat, Mobily, stc Kuwait, Orange - MEA, Zain Group, Arabsat, Sudatel and Omantel.

Board Member Representation (From left to right): Orange MEA, Zain Group, Omantel, Batelco, stc Group, Mobily, SAMENA Council, stc-Kuwait, Arabsat, Etisalat Group, Sudatel Group

SAMENA Council Board of Directors

Eng. Nasser Bin Sulaiman Al Nasser
Group CEO
stc
KSA

Mr. Ihab Hinnawi
CEO International Investments
Batelco
Bahrain

Mr. Khalid Ahmed Balkheyour
President and CEO
Arabsat
KSA

Dr. Kamal S Shehadi
Chief Legal and Regulatory Officer
Etisalat International
UAE

Eng. Salman Bin Abdulaziz Al Badran
CEO
Mobily
KSA

Sheikh Talal Said Marhoon Al Mamari
CEO
Omantel
Oman

Eng. Atef Helmy
Senior Advisor to the Board
Orange, MEA
Egypt

Eng. Mazyad Bin Nasser Al-Harbi
CEO
stc
Kuwait

Mr. Sami Yousif Mohamed
CEO
Sudatel
Sudan

Mr. Scott Gegenheimer
CEO - Operations
Zain Group
Kuwait

Mr. Bocar A. BA
CEO
SAMENA Telecommunications Council
UAE

New Board Members Speak

Mr. Khalid Ahmed Balkheyour
President and CEO
Arabsat

"Communications technology today has the ability to improve people's lives and provide them with access to information and opportunities. As an industry (Terrestrial or Satellite), we have a responsibility to grow, evolve and provide real solutions for the people's needs. I believe the Council will provide a strong, unified voice in our discussions with governments , stakeholders, and regulators, as we all work together to deliver the best possible level of service for the people and markets of this region."

Eng. Salman Bin Abdul Aziz Al Badran
CEO
Mobily

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Mobily's recent achievements:

- Mobily has recorded bust operating performance in Q4 2019, reporting the highest operating cash flows since 2011. Mobily's quarterly and annual financial statements underpinned its organic growth, as the company turned profitable in 2019 for the first time in 5 years. The telecom operator incurred SAR 93 million in Q4 2019, related to the financing agreement aimed at cutting the cost of finance over the coming 3 years. Also, a sum SAR 113 million related to a technical support agreement with Emirates Telecommunication Group Company (Etisalat) was settled in Q4 2019. Mobily reported SAR 31 million in profit in 2019, versus SAR 123 million losses a year earlier. It also posted SAR 125.08 million in losses in Q4 2019, versus net profit of SAR 79.95 million in the same period in 2018.
- Mobily has delivered better user Experience by complete the Modernize 9500+ physical sites on the network and adding 580+ new sites with full configuration. In addition to launching the 5G services, and made a major successful completion of the first 5G call made using 5G stand-alone (5G SA) network in the Kingdom. The 5G SA network does not rely on traditional 4G technology and offers pure 5G network technology from handset to radio and to the core offering higher speeds along with ultra-low latency.
- Mobily was Ranked #1 in Hajj 2019 speed Test as per Ookla. For the 2nd year in a row with improvement reached 78%.
- Boosting Wi-Fi coverage by adding more than 8000 access point enhanced Wi-Fi footprint.
- Smart metering (Smart Energy Consumptions) One of the largest projects in MENA that use capabilities of IoT technologies in smart energy management and consumptions. Implementing 10 million smart meters across the Kingdom for Saudi Electricity Company (SEC) which include management, manufacturing, installation and operating, digital connectivity and technical connectivity with other management systems.
- Mobily has developed and built about 58 Data Centers in Saudi Arabia, with high capabilities, redundancy, and diversity.
- Mobily App has the highest rating from the customer at 4.7.

![Mobily Business logo]

Secure Your Business
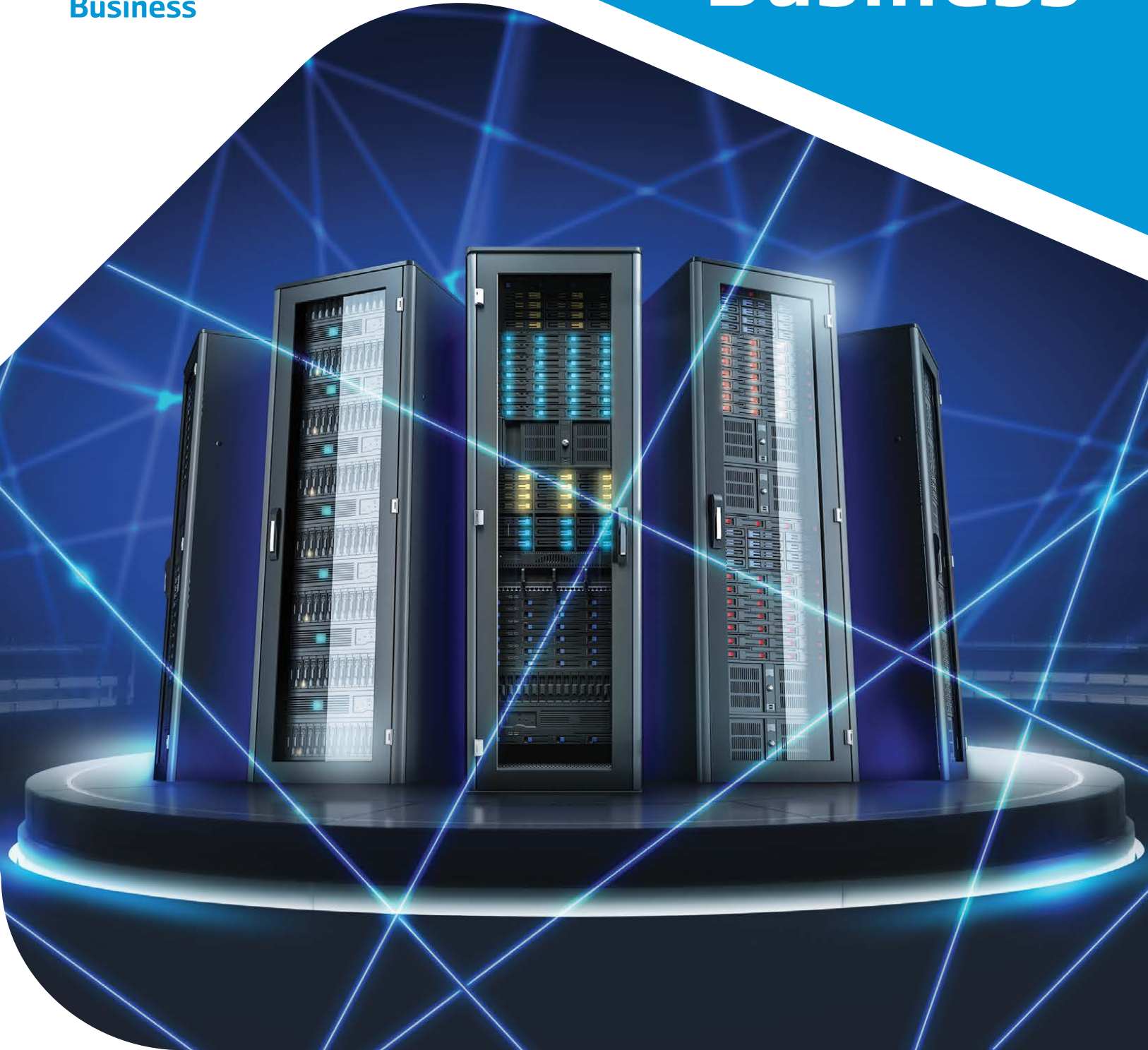
With Anti-DDoS service,

protect your servers from botnets and online attacks

For more information, kindly visit mobily.com.sa/business or contact 901

SAMENA COUNCIL ACTIVITY

Convergence to Bahrain 2020: 5G & IoT and the Regional Digital Vision

SAMENA Council and TRA Bahrain Collaborate to Congregate the Regional ICT Industry in Bahrain

SAMENA Telecommunications Council, in collaboration with TRA-Bahrain, held its first Convergence to Bahrain conference in February at the Four Seasons Hotel in Manama. Convergence to Bahrain 2020 brought together leading private-sector industry players across the Terrestrial, Satellite, and Technology domains and regionally renowned top executives to the conference.

The Convergence to Bahrain conference was attended by telecoms and ICT industry leaders from around the MENA region and consisted of a variety of panel discussions, focusing on regional 5G implementation, technology use-cases for the terrestrial and satellite industry in the 5G space, including IoT, financing models to aid 5G investments and network implementation, and open discussion steered toward understanding the future of 5G connectivity, collaboration, and regulation. The Conference was an effort

for exchanging insights on key IoT trends and use-cases that are made possible with 5G network deployments and to draw focus on the role that operators can and should take in leading the way in 5G-enabled IoT applications and digital services in regional as well as specific country contexts,

including market-specific monetization opportunities available to operators going beyond traditional data packages.

Chairman of SAMENA Council, Eng. Nasser Sulaiman Al Nasser, stc Group CEO, drew attention to the fact that roll-out of

5G networks is very investment-intensive, especially when uncertainty continues to surround its use cases and adequate business models. However, 5G networks can help deliver public services (such as telemedicine and real-time data exchanges to contain endemics), contribute to better resource management in urban and rural areas, including energy and traffic management, as well as water and crop management. They can contribute to improvements in healthcare, the delivery of education, and so much more, and thereby contribute to the fulfillment of the globally agreed Sustainable Development agenda -- which is of immense importance to Operators, Regulators, and Policy-makers alike. 5G network deployment models and corresponding digital services will differ significantly from current deployment and delivery models of e.g., traditional

telecoms services, given their cross-industry and cross-sector applicability. Thus there is significant potential to transform communication and create new

value from 5G and IoT.

Acting General Director of TRA Bahrain, Shaikh Nasser Bin Mohamed Al Khalifa, in his keynote during the SAMENA Convergence to Bahrain 2020 conference, delineated the relevance of IoT and 5G technology and how it will impact the future. Shaikh Nasser stated, "The more we delve into exploring 5G and the myriad of possibilities it can create in combination with IoT, the more practical use-cases surface, justifying the need to incentivize 5G investments at both network and service levels. Autonomous vehicles, smart grids, autonomous farming; the applications are endless, and the world is exploring them as we speak, at a rapid pace." He added, "With such powerful network capacity and speed, we have a duty to unearth all possible beneficial uses of 5G and IoT and tap the immense potential, which can catalyze Bahrain's as well as the region's progress in the age of the digital economy."

SAMENA Council's CEO, Mr. Bocar BA, extending his warm appreciation to the TRA Bahrain, stated that "SAMENA Council's interest in conducting a 5G and IoT conference in Bahrain was driven by multiple factors, including the Kingdom's increasing readiness to benefit from the Fourth Industrial Revolution underway; a business-friendly environment that encourages international businesses and top executives to visit the Kingdom; and, under the TRA's watch, a continued focus on sustainable investments in digital technology infrastructure. Bahrain ranks

among the most mature ICT markets in the whole of the SA-ME-NA region and it is a comfortable destination for conducting business-centric industry meetings that require multiple stakeholders with varying profiles to convene together."

Participation in Convergence to Bahrain conference was open to the Industry and top professionals from adjacent sectors, sharing interest and expertise in 5G and IoT. Major regional industry players, including Batelco Group, stc Group, Zain Group, Mobily, Orange MEA, Etisalat, AT&T, Arabsat, Sudatel, stc Kuwait, Omantel, and Huawei took frontal role in the conference. Other telecom industry players participating in Convergence included stc Bahrain, EDB Bahrain, Zain Bahrain, Cullen International, Strategy&, Orange Jordan, Syniverse Technologies, Oman Broadband, Analysys Mason, Arthur D Little, Nokia, Samsung, Comviva, goetzpartners, Brinc. io and many more…

The advent of 5G networks is shifting the focus back to the local ecosystem and local value-creation. Whereas in the 4G world there was a lot of focus on cross-border provision of services by international digital communications players, for 5G there needs to be a strong local ecosystem to leverage 5G infrastructure and justify the significant investment needed. Locally adapted use cases need to be identified as

Insights & Emphasis from the Conference
- 5G is not meant to be an additional connectivity layer
- Operators can no longer just sell connectivity, but must now explore with vertical partners how a 5G enabled system can be effectively leveraged beyond simple connectivity; need value over and above connectivity
- Connectivity for everyone needs to be ensured so that inequality is not driven any further
- Relevance locally is the most important thing – to enable addressing the real local challenges
- Need more local services, local focus, edge computing
- 5G is an enabler for local value-creation
- To have intelligent digital services we need a sustainable ecosystem; Telecom operators are at the centre of the ecosystem
- Satellite is to become an integral part of the 5G ecosystem
- Innovative use of AR/VR can deliver a step change in how people interact and use 5G
- Mobility for airplanes, inflight entertainment would be served by satellites
- Government is a key player in healthcare, education, eGov, etc, and a key driver in change
- Need to make the C-Band central to achieving 5G economies of scale and developing the device ecosystem, such as 1800 MHz has helped to proliferate LTE
- Regional digital visions require coherent approaches and greater government to government and government to private sector collaboration in order to reach timely fulfillment

regards the vertical space / local industry and resulting local 5G needs. Consumer market potential needs to be carefully studied and assessed in collaboration with vertical players and local and cultural demand characteristics. Key barriers need to be identified and government needs to assume a key role in pushing and including 5G as a key pillar of its economic strategy.

Telecom Operators, indeed, are the key enablers of 5G services and need to make significant efforts to expand their role beyond connectivity. This could start well by working directly with the healthcare industry to address the Coronavirus challenge.

Anticipating Its Members' and Industry Leaders' International Travel Constraints, SAMENA Council Announces Postponement of Leaders' Summit 2020 to Late June

In consideration of current travel restrictions announced across organizations, and requests received from private and public-sector industry leaders invited to participate in the Leaders' Summit 2020, SAMENA Telecommunications Council announces that the annual leadership gathering of business leaders and regional change-makers, originally scheduled to take place in Dubai on April 9th, will now be held later in June 2020. SAMENA Council will announce the new date in the coming weeks.

The agenda of the Leaders' Summit 2020 is centered on bringing Telecom and non-Telecom industries together to hold cross-industry discussions in order to build the case for 5G investments and to see how telecommunications technologies, especially 5G and associated technologies, can catalyze infusion of other industries across all walks of citizen life and layers of the human society in a wholesome, smartly integrated and beneficial manner.

However, in view of the prevailing health situation, SAMENA Council feels its fundamental objective of ensuring its Leaders' Summit's signature-class, comfortable business conference ambience for SAMENA Council Members, policymakers, business decision-makers, and experts, invited to delve into important discussions, may not be fulfilled. Thus, despite having put in place comprehensive health measures, it has been decided to take all constructive feedback from Members and the Industry into account and officially announce the postponement of the Leaders' Summit 2020.

CEO of SAMENA Council, Bocar BA, has stated that "For us to have a productive cross-industry dialogue with concerned decision-makers, it is absolutely essential that all concerned stakeholders are physically present during the power-packed discussions we have planned for the Leaders' Summit 2020. It is, however, equally important to us that inclusiveness as well as well-being of all industry leaders are ensured. SAMENA Council always endeavors toward fulfilling both of these objectives in all its leadership gatherings. I feel that our decision to postpone the leadership gathering from April to end of June, tentatively, will meet the approval of the Industry. SAMENA Council will communicate on this slight change in plans with invited personalities on an individual basis."

The SAMENA Council Leaders' Summit is an annual leadership event, encompassing private and government sector leaders' gathering, business networking, innovation exhibition, various bi-lateral closed-door meetings among CEOs and Regulators, and expert panel discussions, held among stakeholders in business-conducive ambience. To be held under the theme "Harnessing 5G Across Industries", Leaders' Summit 2020 will take discussions from earlier editions of the Leaders' Summit forward toward ensuring inclusiveness of other industries and verticals as the global Digital Economy evolves with the help of 5G technologies.

MEMBERS NEWS

stc Launches Its First 5G Smart Campus in Saudi Arabia

stc has launched its first 5G smart campus in the Kingdom of Saudi Arabia. Through its smart campus initiative, STC intends to offer vertical industries in the Kingdom 5G-powered services. stc's new smart campus will enable the introduction of different service standards for enterprises, oil rigs, gas exploration, educations, medical treatment, mining, and a whole range of other industries with diversified and remote infrastructure. "We are very proud of our continued technological push to reinforce our leading position in the region. STC is determined to bring to market the most advanced technologies and solutions, to deliver total digital transformation. The new advanced smart campus capabilities, coupled with high 5G speeds and low latency will enable new, and previously un-imaginable 5G-based use cases. "The new smart campus solution is a clear demonstration of our resolve to nurture original innovations and formulate future solutions. Every innovation we accomplish is aimed at improving our services to our valued customers. I have no doubt that the smart campus solutions will be another big factor in meeting our commitments to our national vision 2030," said Eng. Nasser S. Alnasser, STC group CEO. Having launched the first of its smart campuses, STC will now deliver high standard service experience guarantees to a range of customers. With high throughput and very low latency, the smart campus will facilitate the introduction of intelligent applications and advanced use cases such as: 5G CCTV, Cloud PC (office Application), cloud gaming, cloud VR (collaboration and training), 5G live broadcasting backpack, AR remote assistance and drone inspection in 5G, delivering a more enhanced customer experience compared to existing public networks.

Saudi Telecom Company stc and Vodafone Group Sign a Memorandum of Understanding in Relation to Vodafone's 55% Shareholding in Vodafone Egypt

stc (Saudi Telecom Company) announces it has signed a Memorandum of Understanding with Vodafone Group Plc2 ("Vodafone") in relation to the potential acquisition of Vodafone's 55% shareholding in Vodafone Egypt by stc. stc and Vodafone ("the Parties") have agreed a cash consideration of US$ 2,392m (SAR 8,970m3) for Vodafone's 55% shareholding in Vodafone Egypt, equivalent to a total Enterprise Value of US$ 4,350m (SAR 16,312m3) for Vodafone Egypt. The final consideration will be determined upon signing of the definitive agreement. On completion of the transac-tion, the Parties intend to enter into a Partner Market Agreement, which will include use of the Vodafone brand, and a range of other Vodafone services. Nasser al Nasser, Chief Executive of stc, said: "The potential acquisition of Vodafone Egypt is in line with our expansion strategy in the MENA region. The transaction, which is still sub-ject to detailed due diligence, confirms stc's eagerness to maintain a leadership position not only in the KSA, but also in the wider region. Vodafone Egypt is the leading player in the Egyptian mobile market and we look forward to contributing further to its continuing success." Nick Read, Chief Executive of Vodafone, said: "I am deeply proud of our business in Egypt, being the clear number one leader in the market. Under stc, I believe they will continue to flourish. This transaction is consistent with our efforts to simplify the Group to two differentiated, scaled geographic regions - Europe and sub-Saharan Africa. Additionally, it will reduce our net debt and unlock value for our shareholders. We look forward to continuing our close relation-ship with the business through a Partner Market agreement, and building on our

significant shared service operations in Egypt, known as _VOIS (Vodafone Intelligent Solutions)." Following the completion of due diligence on Vodafone Egypt by stc, any binding agreement with respect to this transaction will be subject to obtaining the approvals of stc and Vodafone boards as well as any relevant regulatory approvals.

stc develops Artificial Intelligence Applications to Enrich People's Lives and Improve Customer Experience: Nasser Al Nasser

stc Group CEO Eng. Nasser Sulaiman Al Nasser affirmed that stc seeks to develop artificial intelligence applications to enrich people's lives and reinvent customer experience in line with its DARE strategy; for digital transformation and pursuing new opportunities for growth. He pointed out that the telecommunications sector is no longer limited to providing traditional services such as voice communications and internet; its role has expanded to include enabling digital transformation by launching services associated with 5G technologies, the Internet of Things, cloud computing, digital payments, content management and artificial intelligence. This came during his participation in a panel session organized by the Saudi Data and Artificial Intelligence Authority during the activities of the "AI Artathon" competition, which is an initiative by the Global AI Summit that will be held in Riyadh by the end of March, with the participation of more than 300 individuals. Eng. Al Nasser indicated that among the applications that stc seeks to develop are network management and development applications; in addition to marketing applications; financial applications; and customer services and human resources applications; stressing that all these applications benefit both the customer and the company by improving customer experience, reducing costs, increasing income, and optimizing operations. He also highlighted that the Global System for Mobile Communications Association "GSMA" chose the challenge presented by stc as part of its Global AI Challenge launched by the association for the first time with the aim of finding AI solutions to the problems faced by telecommunications companies, noting that this choice reflects GSMA's confidence in the stc's ability to contribute to global research of high caliber in the field of artificial intelligence to tackle many challenges facing the world . Regarding setting up a similar event, he said : " stc constantly seeks to be a national partner in serving the Saudi community by partnering with government entities such as the Ministry of Communications and Information Technology to address data science challenges. stc has participated in supporting and sponsoring the event by providing guides, and evaluating the work presented by participants (about 100 trainees at the Saudi Digital Academy). stc has also participated in the traffic challenge ".

stc Selects Matrixx Software, Celfocus and STC Solutions to Power Jawwy Digital-First Mobile Brand

Saudi Telecom Company (stc) is partnering with Matrixx Software to drive continued growth for its Jawwy brand. STC Solutions is the prime contractor for this project and system integrator (SI) Celfocus has been selected for delivery. As a digital-first solution, Jawwy aims to deliver a rich customer experience to consumers, anchored on a future-ready 5G digital stack capable of powering digital customer engagement at scale. By deploying the Matrixx Digital Commerce platform, Jawwy will be able to digitalize customer engagement, simplify customer journeys and provide better and more comprehensive experiences. STC recognised the importance of evolving the Jawwy offerings to keep pace with their mobile-savvy customers. Matrixx has proven success in bringing customers into production quickly and cost-effectively, thereby enabling providers to launch tailored products and services. STC Solutions (STCS) will be leading the engagement by overseeing all phases of this digital transformation project and ensuring its success. STCS's unique values and strong commitment will enable Jawwy to improve its operational performance, better serve its customers, and explore avenues for growth in the telecom and other industries. STCS is the KSA IT services market leader for four consecutive years, as per the industry analyst firm IDC. STCS is reshaping the IT landscape in Saudi Arabia by helping organizations from all industries to realize their potential. Designed and built for the modern era, the multi-patented, award-winning Matrixx Digital Commerce Platform enables a digital-first reinvention of Telco. Harnessing a cloud native architecture, it allows operators to scale a new generation of services quickly and effectively while ensuring the high availability of distributed systems. Built to scale for digital, 5G and Internet of Things (IoT) services, the Matrixx Digital Commerce Platform provides operators the agility and elasticity needed to compete and win now

and in the future. Haitham Alfaraj, senior vice president of Technology and Operations at STC says, "In line with the Saudi Vision 2030, digital evolution is a key pillar and hence; it is at the core of our technology strategy. Such evolution is intended to build the digital foundation for the different lines of businesses. We have built a dedicated stack to serve the Jawwy digital brand in order to lift up the quality of services and meet the rising expectations of our consumer – the Saudi youth segment. As part of our commitment to providing the best innovative services, we are partnering with Matrixx, Celfocus and STC Solutions to further modernize the Jawwy technical stack by establishing more digital enablers and extending the openness of the Jawwy platform to support further growth while further enriching our customers' experience." According to Hany Aboushady, CTO of Jawwy, "As the digital era rapidly evolve, together with STC Technology, we continue to enhance our platform architecture through an extensive transformation of our digital channels and integration via a

modern architecture designed to benefit from greater agility, openness and autonomy. To further enhance our customer experience, Jawwy is focused on better platform performance with modern billing & charging, openness, adoption of a multi-speed architecture, partnership enablers and platform security. This innovative engagement enables us to embark on this journey, while also adopting new solutions and technologies with world class partners and alliances to take our customer experience to the next level; thus, affirming STC's commitment to remain a trend setter in the region." "There is no doubt we are living the digital evolution era. Our government has identified the digital component as a key pillar in Vision 2030 for a better quality of life," comments Omer Alnomany, CEO of STC Solutions. "The private sector players strive to offer the best digital experiences to their customers. STCS, is committed to providing innovative digital services to our customers. We are very proud to be leading Jawwy digital transformation engagement that will give our customers a

world-class experience. We are confident that, with STC, Celfocus and Matrixx, this unique engagement will result to a model project in the region." "Celfocus' participation in this innovative and ambitious program aims at delivering an extensive transformation of Jawwy's digital channels and integration. With a modern architecture design, Jawwy's business teams will benefit from greater agility and autonomy while ensuring the efficiency and reliability required by technology teams," says Paulo Trigo, CEO, Celfocus. Speaking for Matrixx Software, Dave Labuda, founder & CEO adds, "Partnering with STC, STCS and Celfocus to transform Jawwy's offerings to provide their customers with a truly mobile experience is an exciting opportunity. To successfully compete in today's market, mobile operators have to offer their customers creativity, control and transparency. We are proud to be at the core of Jawwy's commitment to providing its customers with a truly innovative digital service."

Batelco the First in Bahrain to Launch 5G International Roaming

Batelco, the leading digital solutions provider in the Kingdom of Bahrain, has entered into a partnership with du, from Emirates Integrated Telecommunications Company (EITC), to deliver 5G international roaming services in the UAE, making Batelco the first operator in Bahrain to offer the service. Batelco's customers can now enjoy the 5G international roaming service in the UAE when connected to du's network, providing them with a better roaming experience. Commenting on the launch, Batelco CEO Mikkel Vinter said, "We are pleased to enter into the partnership with du to provide 5G international roaming services for Batelco's customers visiting United Arab Emirates. The partnership is testament to Batelco's continuous efforts to provide its customers with solutions that enrich their experience. This agreement becomes one of our 1,560 roaming agreements with international telecommunication companies and we are proud to be the first operator in the

Kingdom to provide this service using a 5G network outside of Bahrain." "Furthermore, we strive to be the leaders in bringing the latest telecom and digital solutions to the Kingdom. Accordingly, we were the first to launch 5G commercially in Bahrain, and today, we are proud to be the first to launch 5G international roaming too. Our

keenness to be the first in launching the latest technologies is motivated by our strong belief in supporting the Kingdom's digital economic vision," he added. Batelco customers can benefit from 5G roaming services while connecting to du by subscribing to Batelco's roaming bolt-on packages on their 5G enabled devices.

Batelco Reports 3% Rise in 2019 Full-Year Net Profit

Bahraini telecoms group Batelco has announced its financial results for the full year ended 31 December 2019, reporting a 3% year-on-year rise in net profit to BHD51.6 million (USD136 million), driven by a 4% increase in operating profit to BHD75.5 million and a BHD28.4 million gain on the sale of Qualitynet in May 2019. Gross revenue fell 1% year-on-year to BHD401.5 million and full-year 2019 EBITDA also dropped 1% from BHD142.8 million to BHD141.7 million, impacted by the BHD11.1 million cost of a voluntary employee retirement program, without which adjusted EBITDA would have been 7% higher year-on-year, thanks to a 5% reduction in operating expenses compared with 2018. The company notes it retains a 'healthy' EBITDA margin of 35%. The group reported its total subscriber base fell 2% to 8.4 million at the end of 2019 compared with 8.6 million the previous year. International operations accounted for 56% of the group's total revenues in 2019, down from 59% in 2018, while revenues in the group's domestic market of Bahrain increased 5% year-on-year, thanks to the performance of its fixed broadband, data communications and mobile services businesses. Batelco Chairman Sheikh Abdulla bin Khalifa Al Khalifa said: 'I am pleased to announce strong financial results which is a result of effective implementation of strategic initiatives, robust operational performance and solid financial discipline.'

ANNUAL FINANCIAL RESULTS ·2019·

GROSS REVENUE 401.5M BHD

EBITDA 141.7M BHD

OPERATING PROFIT 75.5M BHD

NET PROFIT 51.6M BHD

EARNINGS PER SHARE 31.2 FILS

Batelco Launches 'SmartConnect' Service with SD-WAN 2.0 Technology

Batelco, the leading digital solutions provider in the Kingdom announced the launch of its 'SmartConnect' service on SD-WAN 2.0 technology, with the aim of supporting cloud connectivity, automation and digital transformation services for Batelco's Bahrain based and international enterprise customers. Batelco will complement its existing business services by providing customers with simplified management of, and dynamic support for, traditional connectivity, cloud and IoT applications. This development follows the signing of an agreement between Batelco and Nokia during GITEX last year. Batelco is the first in the Kingdom to offer the SD-WAN 2.0 'SmartConnect' service as part of its digital business strategy, where SD-WAN 2.0 technology can use software-defined networks (SDN) over any type of wide area network (WAN). Batelco customers can enjoy advanced control over their network, allowing network traffic segmentation where data transmissions can be prioritized on reliable pathways and less-critical traffic routed to public internet connections. With the new service, Batelco's enterprise customers can also reduce their IT admin costs by managing their corporate networks, including branches, data centres and the public cloud, using one unified dashboard. The dashboard will support customers managing key functionalities, such as user access, security as well as quality and performance parameters, across the network. This service will support Batelco's digital transformation strategy for customers across various sectors such as banking, healthcare, education, hospitality, transportation and energy. Speaking on the occasion, Batelco GM Enterprise Division, Abderrahmane Mounir

said, "We are delighted to announce the launch of 'SmartConnect', which will allow enterprise customers to have comprehensive control over their networks, and efficiently carry out their business with improved capability. We are extremely proud to be the first to launch this service in the Kingdom. The launch of 'SmartConnect' is in line with our digitization strategy to position the Company as a leader in providing digital communication solutions in the Kingdom of Bahrain and the region. We reaffirm our commitment to provide our customers with the latest technologies and to continue contributing towards the development of the telecommunications sector in the Kingdom in support of the growth of the digital economy."

SmartConnect SD-WAN

Etisalat Group's Consolidated Net Profit Grows to AED 8.7 Billion (US$2.37 Billion)

Etisalat Group announced its consolidated financial statements for the 12 months ending December 31 2019.

2019 Financial Highlights and Key Developments

- Aggregate subscriber base reached 149 million, representing Year over Year increase of 6%.
- Twelve month consolidated revenues reached to AED 52.2 billion, while consolidated net profit after Federal Royalty for the twelve month amounted to AED 8.7 billion an increase of 1% compared to same period last year.
- Consolidated EBITDA amounted to AED 26.4 billion, representing an increase of 2% year over year and resulting in EBITDA margin of 51%.
- Proposed dividend payout of 40 fils per share for the second half of 2019, representing a total dividend payout of 80 fils for the full year and a dividend payout ratio of 80%
- Credit Ratings by agencies S & P Global and Moodys affirmed Etisalat Group's high credit rating at AA-/Aa3
- Etisalat named 'The Most Valuable Consumer Brand' and 'The Most Valuable Telecom Brand' in MEA region in 2019 by Brand Finance
- Etisalat network ranked as the fastest mobile network in MENA and fastest fixed broadband network in GCC, Africa and Arabian region
- UAE ranked as no. 1 in Fiber Optic Network deployment for the third year in a row
- UAE ranked 2nd globally in mobile broadband speed in December '19
- Maroc Telecom completes the acquisition of Tigo Chad
- Commercial launch of 4G in Burkina Faso and 3G network in Central African Republic
- Etisalat announces the First End-to-End 5G Stand-Alone Technology implementation in MENA Region
- Etisalat sets global milestone with over 3.1Gbps download throughput over its

5G Stand Alone network
- Etisalat introduces Multi-Access Edge Computing architecture delivering best-in-class video streaming performance for 5G networks
- Etisalat deploys 5G network at the tallest building in the world 'Burj Khalifa', Abu Dhabi's new international airport and 'Etisalat Metro Station'
- Etisalat Digital and Dubai Multi Commodities Centre (DMCC) partner to transform Dubai's Jumeirah Lakes Towers (JLT) enabling the roll out of smart devices, services and platforms to drive efficiencies across public amenities, energy consumption, asset and building management.
- Etisalat partners with Microsoft to provide public/private entities, large, small and medium enterprises with state of the art digital transformative solutions
- Etisalat launches e-Wallet, the new mobile digital payment service in collaboration with Noor Bank
- Etisalat Digital teams up with Abu Dhabi

Digital Authority (ADDA) to launch Scale AD (Abu Dhabi) innovation program
- Etisalat launches UAE's first cloud gaming service
- Etisalat opens 'Smiles UAE' application to all residents and visitors in the UAE
- Etisalat unveiled Robotic Centre of Excellence to deliver automated solutions for greater customer satisfaction

Chairman's Statement:

H.E. Obaid Humaid Al Tayer, Chairman, Etisalat Group, said: "As we begin our journey into the next decade, 2019 was a testimony to Etisalat Group leadership locally, regionally and internationally. Etisalat continued reinforcing its core business, explore new growth opportunities, while transitioning to the digital era and being well geared for the future. Etisalat Group has led the digital transformation by proactively responding to technological advancements and bringing the latest global innovations to nurture creativity. It has become clear that the paradigm shift in the telecom industry
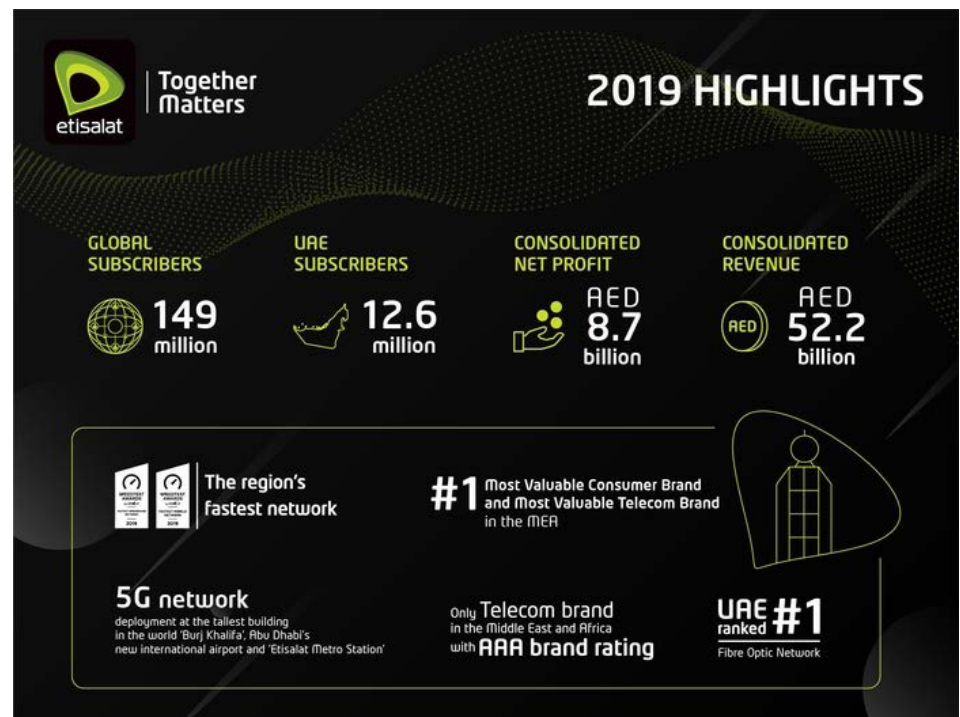
is now in full force. Digital transformation is becoming present in more areas of life, and we have striven to be at the forefront leading it. "Etisalat's performance in the past year is a reflection of the company's capabilities and agility to transform and lead in the digital space driven by our robust vision and strategy. 5G today will give an opportunity to spur innovation across many industries while enabling emergent technologies to become an integral part of UAE economy and lifestyle. "This was only possible due to a decade of

continuous support and vision of the UAE leadership, the loyalty of our customers and the trust of our shareholders. A special thanks to Etisalat management team for their commitment and dedicated work towards the realization of Etisalat's vision and strategic goals."

GCEO's Statement:
Engineer Saleh Abdullah Al Abdooli, Group Chief Executive Officer, Etisalat, said: "Our successful journey in 2019 was driven by realizing our goals of digital innovation and transformation in a rapidly evolving

industry across the societies and markets we serve. "Investing for growth, sustaining a superior infrastructure, possessing differentiated assets, platforms and capabilities were integral to building a network for a better future across our markets. Etisalat today is recognized as the most valuable consumer and telecom brand in the MEA region for the third and fourth consecutive year respectively, an illustration of our long-standing efforts and testament to building a successful telecom brand in the region.

Etisalat Joins Forces with Microsoft to Envision 'Telecoms Provider Platform of the Future'

In a multi-year partnership, Etisalat has announced that it has teamed up with Microsoft to drive public cloud first strategy through a digital transformation program that enables Etisalat to build a digital platform infused with automation and AI providing a simplified network architecture and operations empowering Etisalat subscribers and improving customer experience. "Etisalat and Microsoft embark together on a bold new digital transformation journey that will allow us to leverage our industry expertise to deliver the next generation of networks," said Saeed Al Zarouni, Senior Vice President, Mobile Networks, Etisalat. "Keeping in line with our overall strategy and vision of 'Driving the Digital Future to Empower Societies, we at Etisalat

are committed to nothing less than the total transformation of the consumer and business customer experiences. Etisalat today has transitioned to a digital service provider – the provider of choice for digital services among enterprises and SMB customers, supporting them to monetize services to generate new revenue streams. Together with Microsoft, we are building the communications network of the future." Microsoft Azure will power the infusion of AI capabilities into Etisalat's network by expanding Microsoft Azure solutions into the network, and for Etisalat's new technologies like Multi-access Edge Computing (MEC) and Network Edge Computing (NEC). These will significantly speed up computing at the edge, which combined with 5G, will

enable new types of applications related to smart cities, autonomous systems, gaming, AR/VR, IoT, and vision computing solutions. "Our partnership with Etisalat is further demonstration of the trust regional enterprises place in the intelligent Microsoft Cloud," said Sayed Hashish, General Manager, Microsoft UAE. "Our mission is to empower every individual and organization on the planet to achieve more. Etisalat's digital transformation journey centers on a public-cloud-first strategy including network workloads. Its partnership with Microsoft is designed to merge its telecommunications capabilities with our intelligent cloud solutions, including artificial intelligence and self-healing networks."

Omantel Posts 18.6% Rise in 2019 Revenue

Oman Telecommunications Company (Omantel), the Sultanate's incumbent telecoms operator, has announced its preliminary unaudited financials for the year ended 31 December 2019. The firm has posted group revenue of OMR2.59 billion (USD6.7 billion), an increase of

18.6% from OMR2.18 billion a year earlier, of which domestic operations contributed OMR554.3 million in 2019, compared to OMR546.0 million twelve months previously. Group EBITDA rose by 28.5% year-on-year to OMR1.09 billion in 2019, while net profit grew from OMR208.8

million to OMR299.7 million over the same period. Domestic net profit dropped 11.6% year-on-year to OMR79.0 million, mainly due to a reduction in mobile pre-paid revenue and Indefeasible Rights of Use (IRU) capacity sales.

Omantel Signs MoU to Provide ICT Solutions to Develop Municipal Services

Muscat Municipality and Oman Telecommunications Company Omantel signed a memorandum of understanding (MoU) to employ the information technology solutions and services in developing municipal services and making the two cities of Muscat and Sohar smart and sustainable. Eng. Isam Saud Hareb Al Zadjali, Chairman of Muscat Municipality and Sheikh Talal bin Said Al Mamari, the CEO of Omantel, signed the memorandum on behalf of both Muscat Municipality and Omantel, in the presence of Abdulsalam Mohammed Al Murshidi, the chairman of the governing council of Omantel, in the presence of officials from both sides. Under the memorandum, many solutions for ICT services and smart city services will be provided in the municipal sectors, in addition to introducing the blockchain technology and smart cloud services to integrate them in the management system of customer relation. Al Zadjali stated that smart cities will provide the populace with services that facilitate the use of municipal services. He also added, "The memorandum also provides many innovative solutions that will improve the

quality of municipal infrastructure services to save time, effort and cost." Al Murshidi said that the memorandum will help in making a big leap in e-services which will be the impetus for us in Omantel to develop similar solutions for smart cities in the Sultanate of Oman. Al Mamari believes that the development of telecommunications services motivated the world to be on the verge of a big breakthrough in this field. Dr.

Ammar Al Obaidani, President-Commercial at Block-chain Oman emphasized that collaboration with Omantel enriches the digital experience in the Sultanate, thus promoting the fourth industrial revolution. It is worth to mention that the Municipality seeks to improve the quality of its services and make moves towards technical and digital transformation strategies, based on the Oman Vision 2040.

Omantel to Install Thousands of 5G Sites in Oman by 2024

Oman Telecommunications will set up more than 2,200 5G sites in the next five years as it increases services for the high-speed network across the country. Omantel launched the network in December and said it is ahead of its target for this year in installing 5G infrastructure. "Omantel has signed an agreement with TRA to set up 2,226 5G sites or locations by 2024. This is in accordance with the requirements of commercial use and evolvement of technology across the country," Baha Allawati, vice president of Omantel's enterprise business, told The National. 5G network promises internet speed of up to 1.2 gigabits per second, which will gradually evolve to reach 10Gbps – more than 100 times faster than 4G. "We already have a number of 5G customers in Muscat region and in other parts of Oman. We are running slightly ahead of our plans with more than 100 sites already been deployed," said Mr. Allawati. He did not disclose the amount

that would be invested in setting up the facilities. "The scale of investment is not only linked to the construction of sites but also with preparing other infrastructure such as core network and the backhaul." A backhaul is a high-capacity line that transmits signal from a remote network to another site, usually a central one. The sultanate's largest telecom operator is 51 per cent owned by the State General Reserve Fund – a sovereign wealth fund – while the remaining 49 per cent is publicly-owned. Besides using its own infrastructure, Omantel is also using the fiber network of the state-owned Oman Broadband Company to meet the requirements of higher bandwidth in 5G, said Mr. Allawati. Etisalat, the UAE's biggest telecom operator, became the first service provider in the region last year to offer a network that supported 5G smartphones for commercial use. Soon after, the UAE's second operator

Emirates Integrated Telecommunications Company and Bahrain's Batelco followed suit. Omantel is using the services of multiple vendors, including Huawei, to procure equipment required for the smooth transmission of 5G services. "We are following multiple-vendor model and there are special teams looking after the security of equipment and infrastructure," said Mr. Allawati. Huawei – a key 5G services provider – has faced scrutiny over the past year after the US alleged the company was using its equipment to spy for the Chinese government. It is a claim that Huawei denies. Mr. Allawati said: "So far, there has not been any concrete evidence that Huawei has those [spying] particular motives … If you look around, a lot of European operators have chosen Huawei." Omantel, which is the first 5G provider in the country, offers services in various parts of Muscat, Al Batinah North and Al-Batinah South. "We will continue

to work towards connecting the network to more areas," said Mr. Allawati, who projects "thousands" of new jobs emerging out of the increased 5G usage in the country. "TRA has signed an agreement with Huawei to train 1,000 individuals on 5G tech … this number will be growing exponentially. "Many new verticals are coming up and we just need to be ready for that. The new jobs will be in thousands,"

he said. Omantel's revenues increased by 18.6 per cent to reach 2.59 billion Omani rials (Dh24.71bn) last year while net profit grew more than 43 per cent to 299.7m Omani rials, according to the preliminary earnings posted on Muscat Securities Market, where Omantel's shares trade. Ooredoo ended the monopoly of Omantel in the sultanate when it started its operations in 2004. Anticipating an entry of a third

mobile operator, Omantel bought a stake in Kuwait's telecom operator Zain for more than $2.1bn in 2017. It is the company's second-largest shareholder after the Kuwait Investment Authority sovereign fund. Vodafone, which joined forces with Oman Future Telecommunications last year, is expected to start its operations in Oman later this year.

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stc Kuwait First Nationwide 5G Coverage in MENA Region "E2E 5G Standalone Service"

Kuwait Telecommunications Company (stc), a world-class digital leader providing innovative services and platforms to customers enabling the digital transformation in Kuwait, announced its leadership position as Kuwait's largest 5G network with 100 % 5G coverage in populated areas. stc invested heavily in enhancing its wireless network infrastructure to offer endless features to the Kuwaiti customers. stc is the first to provide live 5G data transmission (Tx) in partnership with Huawei to deliver the fastest and highest speed with new services and outstanding customer experience. This massive transformation in upgrading the entire Tx network links to meet the range of 3Gbps – 10Gbps; which achieves an E2E (End to End) 5G Stand-Alone (SA) solution from Devices to Network and billing with the ability to

simultaneously support both 5G Non-Stand Alone (NSA) and 5G SA. Consequentially, stc is competent to partner with vertical businesses to deliver a wide range of services to exceed its end customer expectations (e.g. health, banking, oil & gas sectors, and more). "5G is here on a nationwide scale. Kuwaiti customers will have access to reliable and ultra-high-speed internet using 5G network," said Maziad Alharbi, CEO of stc. "Time became reality, offering Dedicated Access to enterprise and the innovative consumer to deliver endless services with guaranteed SLAs using 5G Stand-Alone uplink with low latency experience. We welcome all our customers to experience the end to end 5G SA with us." he added.

To leverage from this highly capable state of the art network, stc in collaboration with HUAWE have designed and customised an AI based solution to realize speed-based packages and services. The solution allows the network planner to dynamically devote part of the cell resources to speed-based packages to maintain their speeds; and commercially launch B2B Dedicated Access (DA) and Dedicated Internet Access (DIA) offering unique cost-efficient business connectivity options via advanced technologies. A wide range of use cases and verticals related to health and industrial sectors have already shown great interest in these services. In addition, stc is in process to launch fibre over the air B2H service, in particular for the areas where public wired communication infrastructure is insufficient, to enjoy the high speed internet access.

On the Roadmap
stc is also planning on being the first to deploy a network slicing technology that would help build private networks with high levels of security that can serve banks, companies within the oil sector and other large corporations.

stc Kuwait Signs Long-Term Financing Facility with NBK Worth KD40 Million

Kuwait Telecommunications Company – stc, has signed a ten-year financing facility with the National Bank of Kuwait (NBK). The KD40 mn facility aims to assist stc in expanding its operational activities and financing the Company's capital expenditures. The Executive Management Teams from both entities attended the signing ceremony, where the agreement was concluded in the presence of Salah Al-Fulaij, NBK – Kuwait Chief Executive Officer, Ali Fardan, NBK – Bahrain General Manager, as well as Maziad Alharbi, stc – Kuwait Chief Executive Officer, and Mohammed Al-Assaf, stc – Kuwait Chief Financial Officer. On this occasion, Alharbi, stc – Kuwait CEO, said, "Our strategic partnership, which began over a decade ago, shows the joint effort and mutual trust shared between stc and NBK. I would like to express my sincere appreciation to NBK's executive management and team for their ongoing support and cooperation in arranging and executing this transaction." He added, "Coupled with the launch of our new brand, this facility marks a new step and a pivotal role in implementing stc's sustainable business growth, operational and expansion strategy. The financing facility will be utilized for CAPEX and working capital requirements that will assist the Company in reaching its long and short term goals." Alharbi also said, "We will spare no effort towards enhancing the efficiency of our business model, wide array of offerings and quality services to cater to the needs of our customers and exceed their expectations, as well as pursue our strive towards enabling the digital transformation, benefiting our shareholders and all stakeholders." Salah Al-Fulaij, NBK – Kuwait Chief Executive Officer, said, "NBK is the first choice for companies in the private sector when financing major deals and projects. This is mainly due to the bank's strong financial profile and extensive experience in seamlessly executing major short and long-term financing solutions, which ultimately reflect the bank's leading position in the local and regional banking sector."Al-Fulaij said, "Signing this financing agreement with stc is a testament to the strong relationship that has developed over the years with NBK." He added, "We continue to solidify our leadership role in the market

by providing outstanding banking services to local companies, relying on close relationships with our customers, provide an exceptional level of customer service, offer specialized professional advice, while utilizing our Group's regional and international network. We have utilized our resources and expertise to build an array of diversified banking solutions, while investing in the latest digital banking technology to provide our corporate clients with an unrivaled experience in the banking sector." NBK is the largest financial institution in Kuwait with effective market dominance in the commercial banking arena. The bank has been consistently awarded with the highest credit ratings of all banks in the region from Moody's, Standard & Poor's, and Fitch Ratings. NBK has a wide local and international network of branches across 4 continents, with its international presence extending to cover many of the world's leading financial centers including New York, London, Paris, Singapore and Shanghai. NBK also has a wide regional network covering Saudi Arabia, UAE, Bahrain, Iraq, Lebanon, Jordan and Turkey.

Innovative solutions and major milestones stc strives to provide its customers, whether consumers or companies, with innovative services and digital solutions that enrich the lives of its customer

base. The Company focuses on growth in unconventional paths within the fields of communication, entertainment, information, digital services and data transmission, providing customers with the best experience around the clock. stc has succeeded in attracting investments from the private sector, driving the economy and repositioning the telecom sector as one of the most pivotal and active sectors contributing to the evolution of global technology. The Company has dedicated its resources and strong network to provide the best wireless coverage in Kuwait, playing a key role in enhancing the nation's infrastructure. Since 2008, stc's accomplishments have transformed Kuwait's telecom market through unrivalled wireless pricing models and fee. In 2016, stc entered the International Telecommunications Union (ITU), a specialized agency of the United Nations that is responsible for issues that concern information and communication technologies. In 2019, stc became the first network to offer its customers the 5G service and enabled enterprises mobility. Since then, stc invested in building the most advanced network in the local market, proudly owning the largest number of 5G covered sites in Kuwait.

stc Kuwait Telecommunications Company Records KD43.6 Million (US$143.29 million) Net Profit for 2019

Kuwait Telecommunications Company (stc), a subsidiary of stc Group and a world-class digital leader providing innovative services and platforms to customers enabling the digital transformation in Kuwait, announced its financial results for the full year ended on 31 December 2019, reporting a total revenue of KD 293.7 mn, while company's net profit reached KD 43.6 mn. Commenting on the announcement of these financial results, Eng. Maziad Al Harbi – stc's Chief Executive Officer – stated: "company's financial results for the year ended on 31 December 2019 witnessed a growth, were stc managed to achieve revenues of KD 293.7 mn compared to KD 287.9 mn during the last year, with a percentage growth of 2%. In 2019, stc's EBITDA recorded a growth of 6% to reach a KD 82.4 mn compared to KD 77.8 mn for the same period in 2018. Meanwhile, EBITDA margin reached 28% in 2019 compared to 27% in 2018. As a result, stc achieved a net profit of KD 43.6 mn (earnings per share of 87 fils) in 2019 with a profit margin of 15%. These positive results have been achieved despite the continued competition in Kuwait's Telecommunications sector - one of the most competitive markets in the region - where stc has achieved high levels of revenue in addition to enhancing the operational efficiency in order to help creating value for its customers and better returns for its shareholders. stc has

achieved these results by implementing the digital transformation strategy and offering integrated technology solutions to its customers, individuals and enterprises. stc has also driven its business operations into new areas of sustainable growth, through a series of innovative initiatives aimed at improving operational efficiency, improving customer experience, as well as delivering the best services and products to meet their customers' needs. Furthermore, and in addition to investing in the advanced 5G infrastructure, the company has the largest 5G network with 100% coverage of the populated areas at the end of 2019. Moreover, stc's customer base has reached 2.0 mn customers at the end of December 2019". Al Harbi added: "stc's financial results reflected its capability to compete and enhance its position as the second greatest telecom operator in the Kuwaiti Telecom market in terms of its market share of revenue. Due to its secure and stable financial policy, stc continued to implement the cost optimization program that was adopted by the company during the previous year in order to achieve the best results, which will, in turn, enhance company's profitability through adopting a balanced and effective financial policy in the operational and capital expenditures. Shedding the light on company's financial position as of 31 December 2019, company's total

assets reached KD 391.1 mn where total shareholders' equity reached KD 215.4 mn, with a book value of 431 Kuwaiti fils per share. In addition, stc has a strong financial solvency position, which is considered one of the best amongst the telecom companies across the Middle East. Meanwhile, stc's Board of Directors has recommended distributing cash dividends to respective shareholders of 50 Kuwaiti fils representing 50% of the share's nominal value for the year ended 2019, subject to the approval of the Ordinary General Assembly of the company". Al Harbi concluded, "2019 has marked an exceptional number of achievements for stc. We have successfully launched our new brand 'stc' and the 5G services commercially nationwide. stc has also launched the "Let's go further" campaign which involves introducing company's new concept and strategy of boosting digital services, offering new innovative digital solutions and enhanced service offerings that go beyond the traditional telecom services. This campaign also aims to enrich the customer experience, create additional communication channels and a dynamic approach that is dedicated to catering with customers' needs. The campaign also highlights implementing innovative services and products offerings in order to elevate the Company to obtain and retain its leading position in the market. Furthermore, acquiring 100% of the share capital of Qualitynet – the Internet Service Provider General Trading and Contracting Company in Kuwait – is considered one of the extraordinary achievements of stc during 2019. In light with the ongoing changes in the global economic markets, and the increasing competitiveness in providing leading services in domestic as well as regional digital communications and services, stc has made every effort to enhance the efficiency of its business model and operations, adding value to all stakeholders, including customers, investors and shareholders. In this regard, stc has been working on offering a number of unique as well as innovative products and services, thus supporting its current position as a leader in the Kuwaiti Telecom market".

Market Share

Total Subscriber Base in Kuwait (Mn)
■ Total Subscribers in kuwait (Mn) ■ stc Subcribers (Mn)

Telecom Sector Revenues in Kuwait (KWD Mn)
■ Total Telecom Revenue in Kuwait (KWD Mn) ■ stc's Revenue (KWD Mn)

Subscriber Market Share 2019: **27%**
Revenue Market Share 2019: **34%**
EBITDA Market Share 2019: **29%**
Net Profit Market Share 2019: **31%**
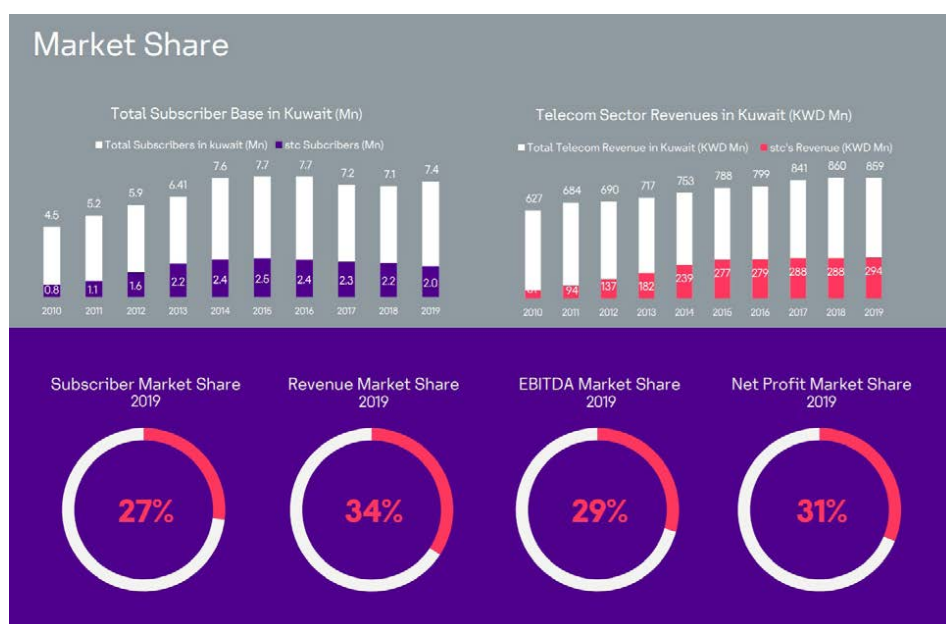
Zain and Commercial Bank of Kuwait Sign MoU to Offer Cloud Solutions and Data Center Services

As part of the joint collaboration between the Commercial Bank of Kuwait and Zain, the leading digital service provider in Kuwait, the two companies signed a Memorandum of Understanding (MoU) through which Zain will offer CBK the latest cloud solutions, data center services, and the most advanced security solutions to drive the bank's digital transformation efforts. The MoU signing ceremony was held at CBK's main headquarters in Kuwait City in the presence of CBK Chairman Sheikh Ahmad Duaij Jaber Al Sabah; Zain Vice-Chairman and Group CEO Bader Nasser Al-Kharafi; CBK CEO Elham Yousry Mahfouz, Zain Kuwait CEO Eaman Al Roudhan, as well as the executive management teams from both companies. As part of the MoU, Zain will offer innovative cloud solutions to revamp CBK's integrated digital infrastructure. The solutions include Zain Business Data Center (ZBDC) services such as data storage and industry-leading security and connectivity. The agreement also includes network cabling and management services, connectivity, CCTV, service management, and more. Zain Vice-Chairman and Group CEO Bader Nasser Al-Kharafi said "We applaud CBK, a well-regarded and successful entity in Kuwait, for proactively assessing its transformation roadmap to digitization and are honored to enter this milestone MoU with them. Storing digital assets securely and efficiently is becoming a key differentiator to businesses in general, and

financial services institutions in particular, and it is important we have robust systems in place to be able to store, access, retrieve and restore data." On his part, Sheikh Ahmad Duaij Al Sabah, Chairman, Commercial Bank of Kuwait said: "we are proud to sign this Memorandum of Understanding where Zain will provide the Bank with innovative cloud solutions, Zain Business Data Center's services and information security solutions. This partnership reflects the Bank's efforts towards digital transformation and the employment of sophisticated technology systems with a view to keep up with the latest digital innovation technologies". "Given the digital transformation seen in the banking industry and accelerating

technological advancement, the Bank endeavors to cooperate and partner with digital service and solution providers in Kuwait, particularly Zain – the leading IT solution, communication and cloud computing provider," stated Sheikh Ahmad. Sheikh Ahmad further explained that banks endeavor to leverage their technology platforms through capitalization on Online Banking and Mobile Banking to enhance their digital presence, stressing that this mutual cooperation between the Bank and Zain will contribute in improving the Bank's digital infrastructure. Sheikh Ahmad emphasized that developing the banking services through employing the latest digital technologies shall reflect positively on our customer base on one hand and on the service & product offering to our retail and corporate customers in such a way that would satisfy their ambitions and live up to their expectations and cope with the advanced services offered by banks over the globe. It is worth noting that the innovative cloud solutions and Zain Business Data Center services are a vital tool towards digital transformation to boost the Bank's efforts towards Hi-Tech Banking & digital innovation without compromising on the security and confidentiality of information.

Zain Group's 2019 Revenues Up 26% Y-o-Y to KWD1.6Bn

Kuwait-based telecoms group Zain has published its consolidated financial results for the twelve months ended 31 December 2019, reporting a 26% increase in revenues year-on-year to KWD1.6 billion (USD5.5 billion), while EBITDA increased 40% annually to KWD728 million. Zain attributed the positive developments to the consolidation of Zain Saudi Arabia, offsetting losses of USD140 million in revenues, USD61 million (EBITDA) and USD20 million (net income) due to a 30% currency devaluation in Sudan. The company booked a net profit of KWD217 million in the twelve months under review, up 10% y-o-y, mainly due to growth in net profit at Zain Saudi Arabia (up 46% y-o-y to SAR485 million [USD129 million]) and Zain Iraq (up 28% y-o-y). In operational terms, Zain Group reported a consolidated customer base of 49.5 million at 31 December 2019, up 1% y-o-y. In Kuwait subscribers increased 1% y-o-y to 2.8 million, while the Saudi Arabian unit served 7.6 million subscribers (down from 8.1 million in Q4 2018). Zain Sudan's subscriber base stood at 15.9 million at 30 December 2019, up 9% y-o-y. Zain Iraq, meanwhile, saw its customer base decrease 2% y-o-y to serve 15.7 million users at end-December 2019, while the user base in Jordan contracted by 3% to 3.6 million. Mr. Bader Nasser Al-Kharafi, Zain Vice-Chairman and Group CEO, commented: 'Our Group financial performance across all operations, especially the robust profit growth in Saudi Arabia, Iraq and Sudan operations, and sound performance by our highly profitable Kuwait operation, tops off an incredible operational year and gives us enormous confidence going into 2020 and beyond. Our 4Sight strategy is taking shape, building on our many strengths while seeking value-creating new business verticals that support our vision of becoming a leading ICT and digital lifestyle provider that makes the world a better place.'

A Regional First: Zain Concludes Sale and Lease Back of Its Telecom Towers in Kuwait to IHS for US$130 Million

In a regional first, Zain Group, the leading mobile telecom innovator in eight markets across the Middle East and Africa, announces that its flagship operation in Kuwait has completed the sale and leaseback of the passive physical infrastructure of its 1,620 mobile tower portfolio for US$130 million (KD 40 million) to IHS Holding Limited (IHS). The transaction is the first sale and leaseback of telecom towers in the Middle East region by a licensed mobile operator. The transaction valuation was aimed at helping Zain to maximize efficiency in its operating model, taking into account future lease terms and the expansion of 5G towers across Kuwait. Under the terms of the transaction, Zain is selling only its passive, physical infrastructure to the new entity and will retain its intelligent software, technology and intellectual property with respect to managing its network. The transaction has been formally approved by Kuwait's Communication and Information Technology Regulatory Authority (CITRA), whose pro-active policies for the telecom sector are in line with new Kuwait Vision 2035. Furthermore, the deal was championed by the Kuwait Direct Investment Promotion Authority (KDIPA), which played a key role in attracting the foreign investment and facilitating the transaction process. Bader Al-Kharafi, Vice-Chairman and Group CEO of Zain said, "This historical transaction unlocks value for shareholders as it gives us greater flexibility to focus on higher yielding digital investments, 5G expansion and operational efficiencies in Kuwait. It also supports Zain's transformational strategy in becoming a digital lifestyle provider through optimizing service delivery and enhancing customer experience." Al-Kharafi added, "I'm very proud of the Zain team for its professionalism in completing this first agreement of its kind in the MENA region. I'm also very appreciative of the positive support of both CITRA and KDIPA which were instrumental in making this deal happen. We are confident we have chosen the right partner in IHS, a company that possesses high caliber expertise with sound operational experience in diverse markets." Sam Darwish, Chairman and Group CEO of IHS commented, "We are delighted to have successfully concluded this transaction with Zain and look forward to a long and successful partnership over the coming years in Kuwait and potentially beyond."

Accenture to Expand Workday Practice to Help Higher Education and Public Sector Organizations Transform Core Operations

Accenture has signed an agreement to acquire the Workday, Salesforce and U.S. MuleSoft practices from Sierra-Cedar. The acquisition will fortify Accenture's leading position in the Workday ecosystem and broaden Accenture services to higher education and government organizations seeking to transform core software systems for human resources, finance, accounting and student services. "We are focused on our clients' priorities for more efficient, secure, transparent and customer service-oriented operations, and the practitioners joining Accenture have the industry and platform skills that are at the center of many such efforts," said Ryan Gaetz, managing director of Accenture's education and government-focused Workday practices. "By bolstering our practice focused on Workday Student, Financial Management and Human Capital Management, Accenture can help our clients achieve a greater set of outcomes." Sierra-Cedar's Workday practice brings deep industry experience and expertise in the small and medium-sized education and government markets. Once finalized, approximately 275 professionals across the United States will join Accenture's Workday, Salesforce and MuleSoft practices, focused on modernizing complex core operational systems and processes for higher education and government clients. "Accenture is committed to investing in innovation that helps advance our ability to meet and exceed client demands and builds our talent base," said Jonathan Fry, managing director of Accenture's global education practice. "This team brings deep client-centric skills and an array of expert capabilities that align

with and significantly boost our offerings to higher education and government." In its 2019 fiscal year, Accenture invested nearly US$1.2 billion globally on 33 acquisitions to acquire critical skills and capabilities in strategic, high-growth areas of the market. Accenture was recently named a leader in The Forrester New Wave™: Workday Implementation Partners, Q3 2019 report. Accenture received a differentiated rating, the highest score possible, in seven out of 10 criteria. The transaction is expected to close in early 2020. Terms of the transaction are not being disclosed.

United Nations Global Compact Launches 'SDG Ambition' Impact Initiative Aiming to Scale Up Business Action at the National Level

The United Nations Global Compact today launched SDG Ambition — a global impact initiative aimed at challenging and supporting companies to integrate the Sustainable Development Goals into their core business. "The business community is not moving at the speed or scale needed to deliver the Sustainable Development Goals. The Goals will not become a reality without greater ambition as well as deeper integration within companies everywhere. We hope that SDG Ambition will establish a new normal for the global business community that is both bolder and more strategic in efforts to achieve the world we want," said Lise Kingo, CEO and Executive Director of the UN Global Compact. "SAP shares a joint vision with the UN Global Compact and Accenture to mobilize industry around SDG Ambition and scale

impact for the 17 Sustainable Development Goals," said Jennifer Morgan, co-CEO of SAP. "By inspiring our global ecosystems and bringing together our respective areas of expertise, we can empower businesses around the world to use 'technology for good' and provide the necessary tools to accelerate achieving the world's 2030 Agenda for Sustainable Development." According to recent research by Accenture and the UN Global Compact, just 21% of

CEOs believe business is playing a critical role in contributing to SDGs. "The time for increased commitment and action is now, and SDG Ambition is a bold and practical response to this timely and urgent call to action," said Julie Sweet, Accenture's chief executive officer. "We are proud to stand with the UN and SAP as partners in unleashing the massive potential for innovation and disruptive technology to help address and solve critical issues

at speed and scale across the globe." The UN Global Compact Local Networks, located in more than 60 countries, will lead the initiative's implementation. SDG Ambition aims to engage more than 1,000 companies across industries in more than 40 countries to focus their sustainability efforts on high-impact strategies and business models.

AT&T Banks on Fiber Build to Fuel its OTT Services

AT&T may have turned in dismal numbers for its fourth quarter video subscribers, but it's banking on fiber-based broadband to fuel its OTT services. For the fourth quarter, AT&T lost 1.16 million video subscribers, which included 945,000 premium video subscribers from its DirecTV and U-verse businesses and an additional 219,000 OTT subscribers for its AT&T TV Now streaming video service. For the year, AT&T shed 3.43 million premium subscribers and 665,000 OTT subscribers. On the plus side, AT&T added 191,000 fiber-to-the home (FTTH) subscribers in the fourth quarter, which was down from the 318,000 in the previous quarter and from the 259,00 in the same quarter a year ago. AT&T finished out the year with 3.88 million fiber broadband customers after closing out 2018 with 2.76 million. During a Wednesday morning earnings call, AT&T's John Stankey, the COO of AT&T and CEO of WarnerMedia, said the telco expects its fiber-to-the-home subscribers will grow to seven million by 2022, which could include one or two million more FTTH capable locations. Last year, AT&T largely halted its fiber built out after meeting the FCC's 2015 conditions to add fiber as part of its deal to buy DirecTV. "We have four million fiber customers today and our recent fiber expansion gives us 14 million locations to sell into," said Stankey, according to a Seeking Alpha transcript. "Based on our fiber sales experience

we expect to exit 2022 with about three million more fiber customers than we have today or a total of about seven million. This will be a significant lift in market share compared to our traditional performance in our legacy hybrid fiber copper-based footprint." Stankey said fiber-based broadband services would increase the penetration of its HBO Max service, which is set to launch in May, and its AT&T TV OTT service. After an initial launch, AT&T TV is slated to be available across the nation next month. "When you're able to put AT&T TV, a software-based product with fiber, it's a much more natural combination than a satellite dish and fiber," Stankey said. "And so, as we start to roll out AT&T TV now in markets and we move in, we're going to see much stronger performance on the fiber side." AT&T's fiber business is part of its Entertainment Group, which includes its video business. Using its broadband fiber, Stankey said AT&T is able to offer software-based video products with low acquisition costs, which will in turn lower its video churn going forward. With its fiber assets in hand, Stankey said that AT&T will "lean into video acquisition given the better economics of our improved product portfolio including AT&T TV and HBO Max." "As we exit the year, our premium video subscriber declines will be more in line with overall video industry trends," Stankey said. "Looking at our total premium video customer base, we expect year-over-year improvements in

the subscriber losses." While AT&T added fiber-based broadband subscribers in the fourth quarter, it lost 141,00 IP broadband customers, which included fiber and U-verse internet subscribers. On the DSL side of broadband, AT&T lost 41,000 customers in the fourth quarter. AT&T wrapped up the fourth quarter with 13.59 million IP internet subscribers and 521,000 DSL customers. AT&T's total number of broadband subscribers came in at 14.1 million, which was down slightly from the previous quarter's total of 14.3 million. Thanks in part to the additional fiber customers, broadband average revenue per user (ARPU) came in at $51.35 in the fourth quarter, compared to $51.25 in the third quarter and $48.83 in the same quarter a year ago.

AT&T Revenues Reach USD181.2Bn in 2019; 850MHz 5G Now Covers 50m People

US telecoms giant AT&T has reported operating revenues of USD181.2 billion for the twelve months ended 31 December 2019, up from USD170.8 billion. Operating income for the year under review reached USD28.0 billion, up from USD26.1 billion in 2018, while annual net income attributable to AT&T shrank to USD13.9 billion (2018: USD19.4 billion). In operational terms, AT&T reported a total of 165.889 million wireless accounts in its domestic market as of 31 December 2019, broken down as 75.207 million post-paid subscribers, 17.803 million pre-paid users, 6.893 million reseller customers and 65.986 million connected devices. In terms of fixed broadband connections meanwhile, AT&T claimed 14.119 million residential users at end-2019, of which 3.887 million were fiber-optic connections. Elsewhere,

AT&T's 'International' segment reported 19.159 million mobile users in Mexico as of end-December, alongside 13.331 million Latin American pay-TV customers. In other news, AT&T has confirmed that its low band 850MHz 5G network now covers 50 million people and is expected to support nationwide coverage – around 200 million – by mid-2020. The rollout progress was

announced by COO John Stankey on the telco's fourth quarter earnings call. TeleGeography notes that the low band service went live in ten markets on 13 December 2019 and utilises former 3G spectrum. AT&T's 39GHz millimeter wave (mmWave) – which was launched in December 2018 – continues to serve parts of 35 US cities.

Trading Update for the Nine Months to 31 December 2019

BT Group plc (BT.L) announced its trading update for the nine months to 31 December 2019.
Key strategic developments - continued delivery in line with strategy:
- Ofcom's consultation on the Wholesale Fixed Telecoms Market Review is an important step forward in incentivizing investment in the UK's digital infrastructure and toward enabling BT to significantly increase its FTTP target
- Exclusive rights to UEFA Champions League, UEFA Europa League and UEFA Europa Conference League secured until

2024
- On-shoring of BT brand sales and service calls completed; nearly 500 retail stores now BT/EE dual Our Better Workplace programme confirmed further long-term locations in Birmingham and Bristol
- Sale agreed of our domestic operations in Spain
- Important clarification on use of certain vendors in 5G and full fibre networks - estimated impact of c.£500m over 5 years
Operational:
- 5G now live in over 50 locations; EE found to have broadest 5G network by RootMetrics
- Openreach accelerates FTTP build at c.26k premises passed per week; 2.2m FTTP premises passed to date
- Openreach awarded two of three lots to provide superfast speeds to Scotland; vast majority of build to be FTTP
- Consumer fixed ARPC £38.2, down 4% year on year due to decline in voice revenue; postpaid mobile ARPC £20.3, down 5% due to impact of regulation and continued trend towards SIM-only; RGUs per address 2.38
- Postpaid mobile churn remains low at 1.3% in Q3 despite impact of auto switching; fixed churn at 1.3% in Q3 down from 1.4% in prior year following customer experience improvements and new pricing strategy
Financial:
- Reported revenue £17,246m and adjusted2 revenue £17,192m,

both down 2% primarily due to ongoing headwinds from regulation, competition and legacy product declines

- Reported profit before tax of £1,911m; adjusted2 EBITDA £5,900m, down 3%1, due to the fall in revenue, higher spectrum fees, investment in customer experience and higher operating costs in Openreach

- Normalized free cash flow of £1,000m, down 42% due to increased cash capital expenditure, deposit for UEFA club football rights, higher interest and tax payments and working capital, partially offset by one-off cash flows

- Capital expenditure £2,877m. Up £251m excluding BDUK funding deferral, driven by fixed and mobile network investment

- Overall financial outlook maintained; we expect normalized free cash flow, for timing reasons, to be in lower half of the £1.9bn - £2.1bn full year guidance range

Philip Jansen, Chief Executive, commenting on the results, said "BT delivered results slightly below our expectations for the third quarter of the year, but we remain on track to meet our outlook for the full year. "We continue to invest in the business. During the quarter we launched Halo, the UK's ultimate converged plan, which will give homes and businesses the best connection and service. We've continued to use our national scale and local presence across the UK to provide customers with the best possible experience, for example by meeting our promise to answer all customer calls in the UK and Ireland and bringing BT sales and service back to the high street in nearly 500 BT/EE stores. "Underpinning the ongoing development of market-leading propositions, we continue to invest in the best converged network. We welcomed the direction of Ofcom's recent consultation, which is an important step forward towards a

widely-shared ambition to invest in fibre across the whole of the UK. We're also investing in 5G, making it available in over 50 locations, with the first customers enjoying a great experience. "The security of our network is paramount for BT. We therefore welcome and are supportive of the clarity provided by Government around the use of certain vendors in networks across the UK and agree that the priority should be the security of the UK's communications infrastructure. We are in the process of reviewing the guidance in detail to determine the full impact on our plans and at this time estimate an impact of around £500 million over the next 5 years. "I'm really excited about the long-term prospects for this great company and I'm confident our plans will enable us to be bolder, smarter, and faster to ensure that we remain successful and create a better BT for the future."

BT Completes 100% On-Shoring of Customer Service Calls to the UK and Ireland to Deliver Personal and Local Customer Service

BT has completed its commitment to answer 100% of customer service calls in the UK and Ireland a year ahead of schedule to deliver the most personal and local service to its customers. The company now becomes the only major ISP to answer all calls across the UK and Ireland, and all calls are answered in the most local contact center to the customer as part of its move to regional call routing. In addition, BT is back on the high street in all EE stores across the UK, to assist and deliver the best service and the most personalized, plus easy-to-

use app and chat experiences, accessible through BT.com. To mark this moment, BT reached out to the Nation to dive into the vast differences in local phrases and dialects that relates and connects people when talking on the phone. From Scotland, Wales, England, and Northern Ireland, 80% of people say that 'Hello' is their preferred way to start a conversation on the phone, which may seem very formal living up to the Nation's stereotype but as conversations progress we're ending with 'See Ya' as our favourite way to end our chat. Other popular phone phrases include

'Wassup' which was particularly popular in London and the South East of England, and in the north other favorites consist of 'What's the craic' and 'Alright?' We aren't just formal when it comes to phone calls either, with 'Regards' being Britain's most popular email sign off (37%), followed by 'Many Thanks' (25%). Whereas, one in ten from London and Yorkshire prefer signing off emails with 'Love From'. Understanding why connecting regionally and locally with people through different phrases and endearing terms delivers a more positive customer experience. BT has partnered with social media comedy page, Very British Problems, by comically engaging Twitter users on picking their favorite phone sayings via a bingo meme. Rob Temple, owner of the comical Twitter page, Very British Problems, says, "The Nation loves a good formal safe "Hello". We know where we are with a hello. It's low risk. We shout all sorts of greetings to our friends and family to their faces, often becoming especially colorful when yelling across a pub, but stick a phone to our ear and suddenly we're in Downton Abbey. Let's hope it stays that way." Our

Nation's famed politeness and etiquette is internationally known through the varied ways Brits address and thank each other. The research shows 'thank you' is the most popular way to show appreciation someone with 'ta' and 'nice one' being the next two favorites, particularly in Scotland and the North West of England. Rob continues, "Britain is a nation of dialects, with unique lingo in every corner of the country. But

something that we all share is our love of local small talk; the weather, footie and the telly, all make us feel comfortable and able to relate to someone on the other side of the phone." Marc Allera, CEO of BT Consumer, said: "We know how important providing a personal, and local service is to our customers and today we're celebrating delivering our commitment to answer all of our customer service calls in the UK and

Ireland. We know our customers value speaking to someone on the other end of the phone who understands their issue, whether that's about their products or the weather. "BT is already back on the high street and within 20 minutes' drive of 95% of the UK population, and now as part of our ambition to be the best for service we're now answering 100% of our customers' calls in the UK and Ireland."

BT Expects New Network Safeguard Rules to Cost It GBP500M Over Next Five Years

Following on from the British government's announcement earlier this week that it will limit the use of equipment from 'high risk' vendors in operator's networks, BT has suggested that the development will cost it around GBP500 million (USD653 million) to comply with the ruling. According to The Guardian, BT currently uses more Huawei equipment in the masts and towers of its mobile network than is allowed under new government rules, and as such it will be required to take this out and replace it with kit from other vendors. Speaking on the matter, BT's chief executive Philip Jansen

was cited as saying: 'The way it works at the moment is when you put a 5G box on a mast it has to be on top of a 4G box from the same supplier … More than 35% of [our] 4G boxes are Huawei. We are going to have to take out some Huawei 4G boxes and not use them again. That is probably the single biggest cost. In order to make 5G work we are going to have to use other manufacturers' equipment.' Meanwhile, the executive was said to have suggested that the total cost to the company could rise beyond GBP500 million. With the new rules meaning that high risk vendors are

limited to a minority presence of no more than 35% in the periphery of the access network, this 35% cap is also reportedly to be applied to how much 5G data traffic can flow through Huawei equipment, not just the proportion of equipment. As such, this may mean BT needing to replace additional Huawei-supplied equipment where it is being used in highly populated, high-traffic areas such as London and Manchester. '[The cap] is not just number of masts, it is traffic as well. The mechanism for defining traffic has not [yet] been agreed,' Jansen pointed out.

Cisco Joins Facebook's Express Wi-Fi Technology Partner Program to Connect More People to a Faster Internet

Cisco announced that it has joined Facebook's Express Wi-Fi Technology Partner Program to close the digital divide and enable more people around the world to get connected to a faster, better internet. According to the 2019 EIU Internet Inclusivity Index commissioned by Facebook, about 3.8 billion people don't have fast and reliable internet access. The study revealed that, in contrast to previous years, progress has stalled on closing the digital divide. Although mobile internet services continue to improve, many low-income countries are seeing slow progress. As part of its corporate commitment to global problem solving and building a better future, Cisco has a goal to positively impact 1 billion lives by 2025. The internet has the potential to transform more people's lives, bringing

benefits in areas such as education, financial services, health, agriculture and transport. Express Wi-Fi is part of Facebook Connectivity, a collection of programs, technologies and partnerships designed to increase the availability, affordability and awareness of high-quality internet access. With Express Wi-Fi, local entrepreneurs, equipment manufacturers, mobile network operators and service providers can build, grow and monetize their Wi-Fi businesses in a sustainable and scalable way. Through the Express Wi-Fi Technology Partner Program, Cisco will build network hardware and software that is compatible with Express Wi-Fi, helping to bring more people online and improve the internet experience. "We are pleased to have Cisco join us in providing more affordable, fast and reliable connectivity,"

said Dan Rabinovitsj, Vice President of Facebook Connectivity. "With Express Wi-Fi, Cisco and Facebook will extend access to the internet in underserved areas where connectivity can offer more opportunities for development and growth." "Cisco has a history of connecting the unconnected, and as an Express Wi-Fi technology partner, we can accelerate the potential for better, faster internet services without boundaries," said Greg Dorai, Vice President of Wireless Product Management for Enterprise Networking, Cisco. "This program offers another path for Cisco to team with its service provider partners to deliver sustainable, high-quality public Wi-Fi via networked solutions that are ready to integrate with Facebook's Express Wi-Fi."

Cisco Appoints New Vice President for MEA

Cisco has announced the appointment of Reem Asaad as its new Vice President for its Middle East and Africa region. As digital transformation continues to change and evolve the business landscape at a rapid pace, Asaad, will be responsible for Middle East and Africa business, growing its position as a leading technology company in the region. With over two decades of experience across industries including technology, financial services, customer experience, Asaad's role will focus on strengthening collaborations with governments, customers and partners, underpinned by Cisco's portfolio of advanced solutions to accelerate their digitization agendas. Commenting on the appointment, Wendy Mars, President of Cisco's Europe, Middle East, Africa and Russia region said, "I am excited to have Reem join Cisco, leading our MEA business. Reem has a wealth of experience in business leadership and strong understanding of the digital transformation landscape. I am confident of Reem's ability to empower our workforce and help regional businesses address their challenges." Prior to joining Cisco, Asaad held the position of CEO at Raya Contact Center, a business process outsourcing service provider based in Cairo with operations in Europe, Middle East, and Africa, servicing multi-national and Fortune 500 companies. During this role, she was instrumental in driving the company growth and go-to-market strategy, digital transformation, and regional market development. "Having been a Cisco Client and a Partner over the years, it is with great pride that I join the Cisco team. There is no doubt that the Middle East and Africa region has a huge potential which I look forward to unleashing together with the support of my wider team. Together, we will focus on how to expand Cisco's reach, empower local businesses and create a greater business and social impact in the MEA region" said Reem Asaad, Vice President, Cisco MEA.

Cisco Gears up Telia Carrier for 400-Gig Backbone

Telia Carrier is in the final stages of launching a 400-Gigabit Ethernet backbone network that is powered by Cisco's NCS5000 series routers. While Telia Carrier is one of the world's largest internet backbones, it's faced with increasing amounts of bandwidth-intensive applications and services, such as streaming video and online gaming. In order to better provision the increasing amounts of bandwidth across the more than 120 countries it serves, Telia Carrier is making the move to 400-Gig. "So they're really interested in moving to higher speeds and more cost effective technologies and 400-Gig is going allow them to get much higher bandwidth in these devices," said Cisco's Kevin Wollenweber, vice president of networking, service provider business. "So when you advertise that bandwidth across the cost of the systems, the cost per bit of these technologies is going to come down pretty quickly. It's about driving towards the cutting edge technology to allow them to transmit more bits at a lower cost across their infrastructure." Wollenweber said that Telia Carrier had already purchased large numbers of Cisco's NCS5500 series routers, which were first launched five years ago. Telia Carrier was the first service provider to buy Cisco's new 400GbE line cards to add to their 5500 routers. "So they were an early adopter of the first 5500 technologies, and what this launch is about is their adoption of the 400-Gig variants of these," Wollenweber said. "We started talking about these variants last year, but we just made them order-able and started shipping the 400-Gig line cards in the 5500 based system." Wollenweber said he didn't know the exact date that Telia Carrier will go live with 400-Gig, but the operator has bought all of the necessary components, including upgraded fabrics that connect all of the line cards together and the new line cards. He said Telia Carrier is in the process of certifying the software release for the deployment, and that it "takes a provider some of amount of time to integrate with their IT systems and get into their automation environments." "The cards that we're shipping today have 400-Gig QSFP-DD 56 plug holes, which is the optics technology that we've been talking about for a while now," he said. "So the ports that are on these NCS 5500 devices can deploy 400-Gig technologies today. More in the short reach and connecting to other routers and applications, and then, as the technologies become available, for longer coherent and longer reach like metro and long-haul coherent connectivity." Wollenweber said one of
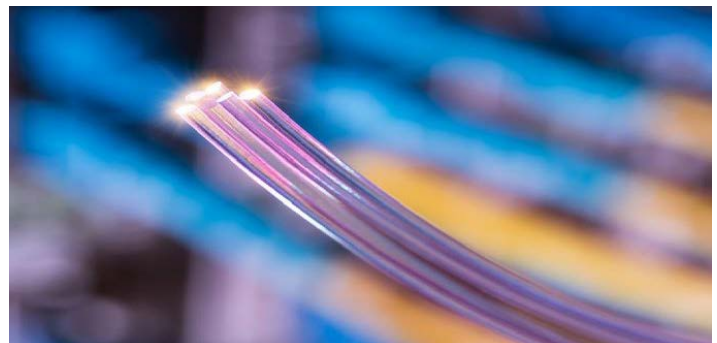
the big reasons Cisco adopted the QSFP-56 DD optic is that it's the same form factor as the existing 100-Gig QSFP28. "So we'll see a lot of customers that are deploying 400-Gig capable line cards and they'll either be putting short reach optics, or even 100-Gig optics, in them today and then the migration to 400 Gig is just changing out the plugs and not the line cards themselves," he said. "They'll deploy those in the same devices. They don't need to replace the devices they have. They just need the 400-Gig plugs and they'll plug them into the existing devices." While Cisco announced a new 8000 series router in December as part of its Internet of the Future platform, Wollenweber said the 5500 series routers aren't going away any time soon. In fact, the NCS 5500 routers will be able to take advantage of the ZR/ZR plus pluggable optics, which were part of Cisco's deal last year to buy coherent optics company Acacia, and Cisco's new IOS XR7 operating system for improved programmability and simplified network management. "A customer like Telia that has a large number of 5500s deployed, they can migrate to these modern technologies on their existing infrastructure," he said. "They don't have to rip it out and replace it." Using ZR/ZR plus pluggable optics allows service providers to eliminate transponders in the their WDM wavelength-division multiplexing) networks.

Cisco 2020 Data Privacy Benchmark Study Confirms Positive Financial Benefits of Strong Corporate Data Privacy Practices

Cisco has published its 2020 Data Privacy Benchmark Study, the company's third annual look into corporate data privacy practices worldwide and shows growing tangible benefits for businesses that adopt strong privacy practices. The Study is based on results from a double-blind survey of over 2,800 security professionals in organizations of various sizes across 13 countries. It provides deep insight into the state of privacy a year and a half after the effective date of the European Union's General Data Protection Regulation (GDPR), widely considered a turning point on how organizations control and manage the use of personal data. Customer demands for increased data protection and privacy, the ongoing threat of data breaches and misuse by both unauthorized and authorized users, and preparation for the GDPR and similar laws around the globe spurred many organizations to make considerable privacy investments – which are now delivering strong returns. Key findings include:

Majority of Organizations are Experiencing Very Positive Returns: Organizations, on average, receive benefits 2.7 times their investment, and more than 40 percent are seeing benefits that are at least twice that of their privacy spend; Operational and Competitive Advantages: Up from 40 percent last year, over 70 percent of organizations now say they receive significant business benefits from privacy efforts beyond compliance, including better agility, increased competitive advantage and improved attractiveness to investors, and greater customer trust; Higher Accountability Translates to Increased Benefits: Companies with higher accountability scores (as assessed using the Centre for Information Policy Leadership's Accountability Wheel, a framework for managing and assessing organizational maturity) experience lower breach costs, shorter sales delays, and higher financial returns; Eighty-two Percent of Organizations see Privacy Certifications as a Buying Factor: Privacy certifications such as the ISO 27701, EU/Swiss-US Privacy Shield, and APEC Cross Border Privacy Rules system are becoming an important buying factor when selecting a third-party vendor. India and Brazil topped the list with 95 percent of respondents agreeing external certifications are now an important factor. Cisco Vice President & Chief Privacy Officer Harvey Jang noted, "With this Study, we now have empirical evidence of privacy investments paying off for companies—particularly with improved customer relationships, revenue impact, and real bottom-line results." As markets continue to evolve, organizations should consider prioritizing their privacy investments on:

- Improving transparency about processing activities – be up front and clear about what you are doing with data and why.
- Obtaining external privacy certifications – ISO, Shield, CBPRs and BCRs have all become important factors in the buying process by streamlining vendor due diligence;
- Going beyond the legal bare minimum – privacy is a business imperative and most organizations are seeing very positive returns on their spend;
- Building strong organizational governance and accountability to be able to demonstrate to internal and external stakeholders your privacy program maturity.

To learn more about how Cisco manages personal data in its products and services, please see Cisco's Data Privacy Sheets and Cisco's Data Privacy Maps. The data maps provide a visual representation of how Cisco products collect and handle personal data.

CISCO CYBERSECURITY SERIES 2020 • DATA PRIVACY
JANUARY 2020

From Privacy to Profit:
Achieving Positive Returns
on Privacy Investments

Cisco Data Privacy Benchmark Study 2020
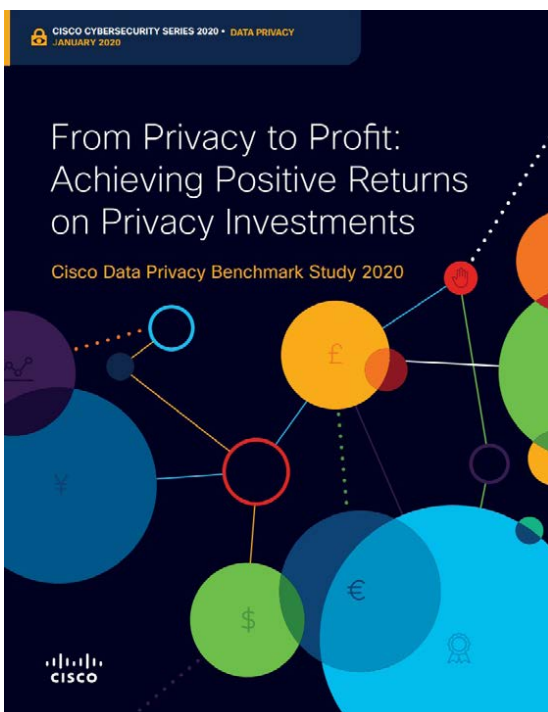
Cisco Opens First Cybersecurity Co-Innovation Center in Europe
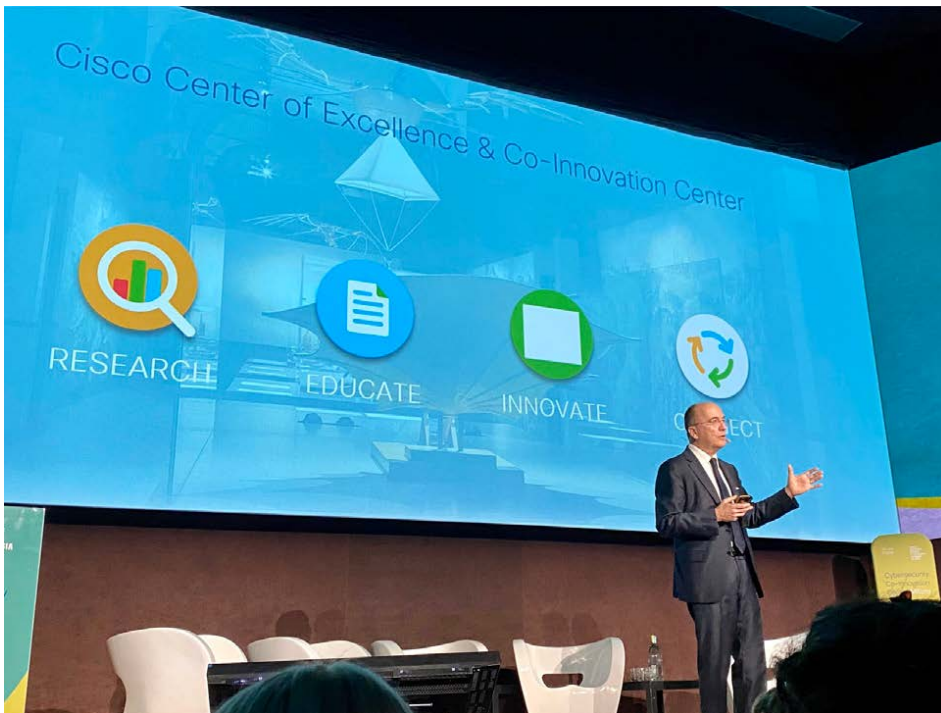
Cisco's first Cybersecurity Co-Innovation Center in Europe opened its doors in Milan today at the Leonardo da Vinci Science and Technology Museum. The center was inaugurated in the presence of Paola Pisano, Minister for Technological Innovation and Digitization; Roberto Baldoni, Deputy Director General of DIS (Prime Ministerial Department of Security Information); and Giuseppe Sala, Mayor of Milan. Cisco Chairman and CEO Chuck Robbins gave the inaugural address, joined by the CEO of Cisco Italy, Agostino Santoni, Pastora Valero, VP Government Affairs Europe, and several international executives who supported the initiative.

Cisco's first European center for Co-Innovation in Cybersecurity

The new center, the first for Cisco in Europe, is dedicated to Cybersecurity and privacy. It will focus on complex supply chains, IoT technologies, critical country infrastructures like utilities, smart grids and 5G – as well as public digital services with embedded security. Furthermore, the center will support threat intelligence research and security incident response capabilities. It will provide workshops for the development of innovative solutions focused on Cybersecurity and privacy, as well as space for developers and researchers to use. Pastora Valero, Vice President of Government Affairs EMEAR at Cisco said "As the world's largest vendor of security solutions, Cisco is compelled to help our customers, partners, governments and all citizens to digitize securely." "Our first Cybersecurity co-innovation center in Europe will enable more research, foster greater innovation and build capacity to create solutions for the most pressing societal security challenges, such as the security, resiliency and privacy of critical infrastructure which are at the core of

secure digitization. We know this is a priority in Europe and we are delighted to have opened this space alongside the Italian Government that will see the benefits extend across the whole region." Supporting A Secure Digital Europe.

The innovation center in Milan is part of Cisco's ongoing investment in Cybersecurity and, with six co-innovation centers in Europe, this ongoing investment in the EU supports the European Commission's and Parliament's aspiration to create a more secure future for citizens across the region. Cisco's Co-Innovation Centers around the world are hubs for open innovation, bringing together communities of customers, partners, start-ups, accelerators, governments, universities and research communities to foster the exploration and development of new technologies. The Milan center is funded by investments through Cisco's Country Digital Acceleration (CDA) Program – a global initiative designed to accelerate national digitization agendas in partnership and collaboration with national, state, and local governments. This co-innovation center comes as part of a broader series of strategic initiatives between Cisco and the Italian government since 2016. In addition, Cisco currently has completed over 250 projects to help accelerate digitization across Europe in collaboration with government leadership, of which nearly 40 are focused on Cybersecurity in these countries. Cisco's investment into Cybersecurity also extends to supporting students in gaining essential digital skills. Over the past ten years, 144,595 students in the 28 EU countries have taken Cybersecurity courses through Cisco Networking Academy. This includes 43,860 in the last fiscal year alone (FY19).

Cisco Software Fortifies Industrial IoT Security

Cisco is looking to better protect myriad edge-attached IoT devices with new security software that promises to protect industrial assets in one of the most disparate of network environments. The company rolled out what it called

an overarching security architecture for Industrial IoT (IIoT) environments that includes existing products but also new software called Cisco Cyber Vision, for the automated discovery of industrial assets attached to Cisco's extensive IIoT

networking portfolio. Last year, Cisco rolled out a new family of switches, including the Cisco Catalyst IE3x00 ruggedized edge switches, software, developer tools and blueprints to meld IoT and industrial networking with intent-based networking

and classic IT security, monitoring and application-development support. The new security rollout also included Cisco Edge Intelligence software to simplify the extraction of IoT data at the network edge. Together with the new software, IT and operational technology (OT) groups will be able to work together to provide advanced anomaly detection in IIoT environments, said Joe Malenfant, director of global IoT for Cisco. "The architecture understands what normal industrial traffic looks like, and if something is out of the ordinary, like a local industrial [programmable logic controller] suddenly starts communicating with a computer in another country, the IT and OT security folks can be notified immediately," Malenfant said. The security architecture looks to address a number of challenges in the IIoT arena, wrote Vikas Butaney, vice president of product management with Cisco's Internet of Things (IoT) Business Group in a blog about the announcement which came at the Cisco Live Europe event in Barcelona. IIoT projects in operational settings typically lack up-to-date asset inventories with a baseline of normal communication patterns to detect

security and configuration anomalies, he stated. Flat, unmanaged, industrial-plant networks allow unfettered propagation of cybersecurity threats, threatening system downtime, and increasing risks to people and industrial processes. And while data is king, it becomes trapped in heterogeneous environments incorporating industry-specific protocols that are foreign to IT and security tool sets, Butaney stated. With that in mind, Cisco Cyber Vision software embedded in Cisco's IoT networking gear works by passively discovering networked assets and decoding industry-specific process flows using passive Deep Packet Inspection (DPI) technology. Then, using a combination of OT-specific rules and intelligence from Cisco's Talos threat-research team, it provides real-time anomaly detection and monitoring, Butaney stated. Information gathered by Cisco Cyber Vision can also be used to develop segmentation policies in existing Cisco Identity Services Engine (ISE) for access control and segmentation and DNA Center for centralized management. The idea is to let IT and OT stop the unfettered propagation of threats across operational

environments – a process that is a highly manual and does not keep up with changing requirements today, Butaney stated. Cisco Cyber Vision can also pass data to third-party security information and event management platforms, such as IBM QRadar and Splunk, Cisco stated. Cyber Vision is based on technology Cisco acquired from Sentryo last year. Sentryo technology offers anomaly detection and real-time threat detection for IIoT networks. Sentryo products include an asset-inventory, network-monitoring and threat-intelligence platform, including network edge sensors that analyze network flows. The other new software, Cisco Edge Intelligence, runs on Cisco's IoT packages and gathers data from connected devices to create logical flows from the edge into private, public or third-party clouds, Malenfant said. For example, if a robotic arm in a remote system needs replacement, it can send telemetry or information about the problem. Edge Intelligence extracts that data and gives the OT team information it can use to fix the problem, Malenfant said.

Cisco and IBM Partner on Managed Private Cloud Offering

Cisco and IBM are out of the starter blocks with new managed private cloud-as-a-service for x86 hardware that's powered by Cisco's Unified Computing System (UCS). The fully managed private cloud offering has two options. The first is a standard VMware-based solution while the second is a Red Hat OpenShift-based version. In a Friday blog, Keith Dyer, a vice president in the global partner organization at Cisco that manages its IBM alliance, said private cloud environments help IT teams simplify the management of their infrastructure while providing the same benefits as traditional public cloud providers. In order to deal with increasingly complex IT infrastructures, organizations have migrated their workloads to public clouds only to come face-to-face with new types of problems, such as security, data sovereignty, industry

regulations and performance requirements for business applications. While not mentioning Amazon Web Services and Microsoft Azure by name, which are the two biggest public cloud providers, Dyer said that the Cisco and IBM managed private cloud service can offer the same benefits, such as a pay-per-use operating expense model that can scale as needed, as the large cloud providers. "This is a fully managed offering delivered by IBM Services that provides the consumption and utility of a public cloud but delivered on premise," Dyer said. "There are no huge capital outlays, no surprise pricing and no long-term commitments." As a managed service, IBM installs and manages the compute environment while also providing tools for support and upgrade requests. Dyer also said the solution placed a high

priority on security, proactive mentoring and reporting. To achieve those priorities, IBM is using Cisco Intersight and its own decades-long experience managing customers' infrastructures. Cisco Intersight provides proactive support for Cisco UCS. Launched in 2009, Cisco UCS is a data center server computer product line composed of computing hardware, virtualization support, switching fabric, and management software. "By combining the best of Cisco's data center portfolio and IBM Services, together the two companies deliver an on and off premises private cloud to our customers in a way that reduces risk, complexity, and provides an un-paralleled experience," Dyer said. "Ultimately, customers gain the flexibility to grow their businesses un-encumbered by IT constraints."

du Announces Deployment of the First Live Millimeter Wave 5G Site at Yas Island

As part of its commitment to support the UAE's digital transformation, UAE-based telecommunications provider du, from the Emirates Integrated Telecommunications Company (EITC), has successfully deployed the Middle East and North Africa's (MENA) first millimeter (mm) Wave site at the du arena in Yas Island, Abu Dhabi, which will provide the region's highest ultra-high mobile broadband 5G services, increase coverage, and accelerate the pace of widespread 5G usage in the country. The first mm Wave site will help provide ultra-high mobile broadband speeds of up to 2.1 Gbps using 26GHz frequency. du is still working on reaching new breakthroughs of even higher user throughputs by deploying more bandwidths on mm wave to exceed 4Gbps speed. Saleem AlBlooshi, Chief Technology Officer, EITC, said: "du continues to deliver pioneering solutions that enhance best in-class infrastructure and contribute to the government's digital transformation agenda. By actively driving the latest innovative technologies and solutions, transformation achieved as a result will boost performance and increases industry standards. The mm Wave frequencies will greatly improve network capacity and allow du to deliver enhanced services to an unprecedented number of mobile users. Furthermore, they will provide cost-effective 5G coverage in high-traffic areas. 5G device sales that support the mm Wave are continually rising and we anticipate higher market availability and wider adoption in the near future." The move aligns with the Telecommunications Regulatory Authority's (TRA) announcement on 13th of February that the UAE will become the first country in the Middle East to use higher 5G frequency in 2020, and the transition will ultimately contribute towards the country's goals in relation to global competitiveness, ICT infrastructure readiness, and becoming the global leader in online government services.

du Continues to Soar Up in Global WTA Rankings

du, from Emirates Integrated Telecommunications Company (EITC), is soaring as a regional and global leader in Broadcast Services following its success in the latest annual World Teleport Association (WTA) rankings. With strong progress in The Independent 10 (5th) and The Global Top 20 (17th) categories of the WTA's Top Teleport Operators of 2019, du continues to cement its position as a standout performer and innovator in the rapidly evolving teleport and media sector. 'Soaring in the Broadcast space'

Farid Faraidooni Deputy CEO - Enterprise Solutions, du, said: "For over 15 years, du's Broadcast and Media services have become a reputable force in the regional and global teleport space. We constantly aim to innovate the broadcast arena to ensure our customers receive best-in-class services, and our recent success in the latest edition of the WTA annual rankings reflects this commitment. Our new WTA milestones illustrate our endless pursuit to provision customers with bespoke managed broadcast services that seamlessly complement their offerings and create positive impacts for end users. As we enter a new decade, du will continue to innovate its capabilities to ensure that our customers can enter new markets and expand their reach across the globe with reliable, high-performing, and secure connectivity via our world-class teleports." 'Scaling new heights'

du's rising success is a result of the organization's dynamic capabilities in the broadcast arena. This enables the company to offer regional and international broadcast and media players' world-class solutions delivered through state-of-the-art teleport facilities, located in Dubai. As the only teleport in the MENA region to be included in the list, du rose two places from The Global Top 20 (19th to 17th), after debuting in the category for the first time in the 2018 ranking. The Global Top 20 ranks companies based on revenues from all customized communications sources and includes operators of teleports and satellite fleets. The company also scaled further up The Independent Top 10 rankings, from 6th in 2018 to 5th in 2019. This category focuses on the independent operators at the core of the business, excluding companies whose primary business is ownership and operation of a satellite fleet or terrestrial network. The annual WTA rankings of companies by revenue and revenue growth are compiled by surveying teleport operators around the world as well as referencing the published results of publicly-held companies.

du Announces 9.3 Percent Growth in 2019 Net Profit

Emirates Integrated Telecommunications Company PJSC (DFM: "du") published its fourth quarter and annual financial results for the year 2019. It reported a strong growth of 9.3 percent in its annual Net Profit (on a like-for-like basis) and an acceleration in the deployment of its investment plan, particularly in connection with 5G roll-out and fiber network expansion with annual capital expenditures reaching AED 1.5 billion. On the basis of these results, the board recommended to the shareholders, for the year 2019, a dividend distribution of 34 fils per share out of which 13 fils per share have been already paid in August 2019 as an interim dividend. EITC reported for the year 2019 a total Net Profit of AED 1.73 billion. On a like-for-like basis, Net Profit grew by 9.3% reflecting a better product mix that led to an improvement in the gross margin as well as an improved efficiency in the management of the business. These positive results were achieved in a challenging environment where total market revenues declined. Indeed, EITC reported in 2019 annual revenues of AED 12.59 billion showing an erosion of 6.2%. The growth of fixed and ICT revenues absorbed partially the pressure on mobile prepaid revenues adversely impacted by pricing, competition and the negative impact on the base of the SIM registration disconnections. With an annual EBITDA

of AED 5.68 billion growing by 1 percent on a like-for-like basis, the Company was able to absorb the pressure on its top-line thanks mainly to a better mix of revenues and efficiency in managing its cost base. Capital expenditure increased by 46.8 percent to AED 1.5 billion (or 12 percent of the revenues) reflecting continuation of the investment in 5G network rollout, fiber network expansion and IT modernization and transformation initiatives. EITC's subscriber base continued its growth in the fixed segment reaching at the end of 2019, 219 thousand subscribers reflecting a 7.1 percent growth when compared to last year and stabilized its mobile base as the impact of SIM registration started in Q4 to fade away. EITC continued to focus on attracting high-value post-paid mobile customers, supporting an annual ARPU growth of 4.3 percent. Q4 2019 revenues increased by 4.1 percent compared to the previous quarter to reach AED 3.2 billion as a result of the steady increase in fixed and "other segment" revenues. The revenue growth reflected both a seasonality effect and a stabilization of the subscriber base as the impact of SIM registration disconnections is fading away. The Increase in revenues coupled with cost efficiency and certain reversals led to an improvement in the EBITDA and the Net Income by respectively 9.6 percent and 14.5 percent when compared to Q3 2019.

Q4 2019 Net Income grew by 30.4 percent on a like-for-like basis when compared to the one of Q4 2018. Growth in profit is led by increase in fixed revenues as well as efficiency efforts. EITC reported revenues for Q4 2019 were at AED3.2 billion, showing an erosion of 6.1% compared to the ones of Q4 2018. The growth of fixed revenues has partially absorbed the pressure on mobile prepaid and handset revenues. Capital expenditures increased in Q4 2019 to 709m (or 22 percent of the revenues) reflecting the acceleration of investment in 5G network rollout and IT modernization and transformation initiatives. Commenting on the results, Mohamed Al Hussaini, Chairman of EITC said: "I am pleased with the strong results that EITC was able to achieve despite the challenging environment that the telecom market went through in 2019. EITC was able to absorb fully the pressure on its revenues through increasing focus on promising growing revenue streams, better mix of its base and increased efficiency. It also re-affirmed its commitment to the investment in the country infrastructure accelerating the deployment of its 5G network to support the future development of new products and services. This has been translated into a net income of AED1.73 billion that supported board recommendation for a dividend distribution of 34 fils per share." Commenting on the results, Johan Dennelind, new CEO of EITC said: "I am excited to join EITC in this phase of its evolution. 2019 has been a year of paradigm shift in the telecommunication industry in UAE. I note that EITC has been able to navigate in a changing environment, starting to pull growth levers in promising business lines, to protect its margins and profitability and to inject important capital towards the deployment and modernization of its infrastructure. As the new CEO, I will work with the team to define and then execute a full transformational plan for the Company to deliver on the digital promise, further improve customer experience and be at the forefront of the new technological evolutions aiming for a world class digital telco creating value for our shareholders."

Eutelsat Selected by AfricaXP for DTH Satellite Services across Sub-Saharan Africa

Channel network and content distributor AfricaXP has signed multi-year agreements with Eutelsat Communications (Euronext Paris: ETL) for Ku-band capacity on two Eutelsat satellites, positioned at 16° East and 7° East. This capacity will enable AfricaXP to extend the reach of its DTH free-to-air TV platform, Premium.Free. Currently broadcast in West Africa, the platform will leverage the unparalleled coverage of Eutelsat's 7° East hotspot to roll out a regionally customized offer of 23 channels across Eastern and Southern Africa from mid-February. In addition, AfricaXP will launch an inaugural, 10 channel French language bouquet from Eutelsat's 16° East position with its powerful footprint over French-speaking African countries. Craig Kelly, AfricaXP's CEO, said: "Premium.Free has been entertaining viewers in Anglophone West Africa for the past year by providing a pay-TV quality experience to the public free-of-charge as an unencrypted satellite service. Eutelsat's 7° East and 16° East positions offer us comprehensive geographic reach in Africa's key Western, Eastern and Southern markets where they serve large audiences. This has ignited a strong interest from our advertising partners." Nicolas Baravalle, Director of the Sub-Saharan Africa region at Eutelsat, added: "Eutelsat is delighted to be supporting AfricaXP in rolling out this multichannel Free-to-Air model across Sub-Saharan Africa. Moreover, this partnership reinforces the strength and desirability of these two orbital hotspots for the Sub-Saharan region, which are becoming increasingly sought after by broadcasters."

EGNOS Payload Enters Service on EUTELSAT 5 West B

Eutelsat Communications (Euronext Paris: ETL) announces that the GEO-3 payload of the European Geostationary Navigation Overlay System (EGNOS), a hosted payload aboard its EUTELSAT 5 West B satellite, has successfully entered into service. EUTELSAT 5 West B is hosting the Eutelsat-procured EGNOS payload under a 15-year agreement signed in 2017 with the European Global Navigation Satellite Systems Agency (GSA). The contract also includes technical services and a European ground infrastructure, including two gateways installed at Eutelsat's Rambouillet and Cagliari teleports. Yohann Leroy, Eutelsat's Deputy CEO and Chief Technical Officer, said: "Eutelsat is proud of the collaboration with its customer GSA, its partners including the European Space Agency, and its suppliers, culminating in the entry into service of this next generation technology of EGNOS on EUTELSAT 5 West B. We are delighted to host this payload, which will significantly enhance the performance of global navigation satellite systems across Europe, notably Galileo, in the coming years." Pascal Claudel, GSA Acting Executive Director and Chief Operating Officer, declared: "With this new payload in service, EGNOS is moving towards the transition to its new generation. This has been done thanks to the constructive collaboration with Eutelsat. Delivery and continuity of satellite services are part of our mission as delegated by the European Commission. It is essential that we, at the GSA, ensure these services to support economic growth and that the European Union's citizens and companies can benefit from the latest GNSS technology."

Eutelsat and SES Make Their Own Cases for More C-Band Money

SES is now arguing that it deserves as much money as Intelsat to clear C-band satellite spectrum for 5G cellular networks, following Intelsat's solo effort last week to increase its share of the FCC's $9.7 billion fund. Meanwhile, Eutelsat, a former partner of Intelsat, SES and Telesat in the now fractured C-Band Alliance, is seeking around $1 billion more for itself. The FCC is scheduled to vote Feb. 28 on a plan that includes $9.7 billion to accelerate spectrum clearing by September 2023 instead of 2025 and that covers new satellites and other infrastructure needed to continue services with less spectrum. The total amount for both is around $14.9 billion, though the final tally could be higher. The FCC cautioned that its $3.3 billion to $5.2 billion price tag for replacement infrastructure is just an estimate. The

FCC's plan, unveiled Feb. 7, calls for giving the largest share of accelerated clearing payments to Intelsat. Its 50% share could be worth up to $4.85 billion, if the spectrum is cleared by the FCC's 2023 deadline. SES would be eligible for a 41% share, or up to $4 billion, with smaller players Eutelsat, Telesat and Embratel Star One dividing a 9% share. Intelsat broke ranks last week with the C-Band Alliance it helped create, telling the FCC Feb. 19 that it deserves 60-67% of the proposed $9.7 billion in accelerated clearing payments since it needs to clear the largest share of North American C-band spectrum to make way for 5G. Intelsat, in making its case for more money, told the FCC to treat the C-Band Alliance as defunct. SES, which publicly rebuked both actions, told the FCC in a letter released late Feb. 20 that Intelsat

"has no right to unilaterally disband the [C-Band Alliance]." SES added that the FCC should not "take proposed payments from SES in order to placate disgruntled, financially-troubled companies." "SES rejects the assertion by Intelsat that 'there will be no C-Band Alliance going forward'," the company wrote. SES has nonetheless started its own campaign for more money, arguing that "undisputed facts conclusively show that Intelsat and SES deserve equal shares of any accelerated relocation payments." The two satellite operators will need to install roughly equal numbers of new C-band dishes and signal filters for customers affected by the spectrum loss, SES said. Both companies will need to decommission six command and control gateway sites, as well, according to SES.

Entry into Commercial Service of EUTELSAT 7C

Eutelsat Communications' EUTELSAT 7C satellite has entered full commercial service and is ready to support broadcast customers across Africa, Europe, the Middle East and Turkey. Manufactured by Maxar Technologies, EUTELSAT 7C is a 3.4 ton high-power all-electric satellite carrying 49 36-Mhz equivalent Ku-band transponders. Successfully launched from Kourou, French Guiana, on 20 June 2019, the satellite is co-located with EUTELSAT 7B at 7° East, increasing capacity at this dynamic neighborhood by 19 transponders. During the night of 27-28 January 2020, the Eutelsat teams migrated a number of services from EUTELSAT 7A to EUTELSAT 7C, including Turkish Pay-TV platform Digiturk, Turkish national broadcaster TRT, and Globecast UK for coverage across Europe and the Middle East. EUTELSAT 7A will be transferred to another orbital location as part of Eutelsat's fleet optimization strategy.

FACEBOOK

Facebook Growth Continues Despite Rising Costs

Facebook posted an annual revenue uplift of 25 per cent in Q4 2019 as its advertising business continued to thrive, however the social media giant's privacy issues contributed to a rise in expenses during the period. Revenue of $21 billion was up from $16.9 billion in Q4 2018, the bulk coming from advertising. Net income rose 7 per cent to $7.3 billion. Daily active users on Facebook increased 9 per cent to 1.7 billion. Across Facebook, Instagram, WhatsApp and Messenger, it booked an 11 per cent increase to 2.3 billion. Despite the positive results, a rise in expenses stood out, as it continues to grapple with privacy concerns across its platforms. The company reported a 34 per cent rise in total costs and expenses to $12.2 billion for Q4, with the full year figure up 51 per cent to $46.7 billion. On an earnings call, CEO Mark Zuckerberg (pictured) said 2020 was going to be "a big year for our greater focus on privacy". He said the company was committed to building privacy controls as part of a $5 billion settlement with the US Federal Trade Commission, and had 1,000 engineers working on privacy-related projects. "I want us to build a reputation for privacy that's as strong as our reputation around building good, stable services," he said. Facebook also confirmed it agreed to pay $550 million to settle a lawsuit in Illinois over the use of photos for its facial recognition technology.

Family Average Revenue per Person (ARPP)

	Q4'18	Q1'19	Q2'19	Q3'19	Q4'19
Total	$6.52	$5.66	$6.20	$6.33	$7.38
Other	$0.11	$0.06	$0.10	$0.10	$0.12
Advertising	$6.41	$5.60	$6.10	$6.23	$7.26

Facebook Chief Seeks Middle Ground in Online Safety

Facebook CEO Mark Zuckerberg argued regulation of online content should blend current rules covering the media and telecoms industries, as he stepped up calls for a unified approach to internet safety, Reuters reported. During a question and answer session at the Munich Security Conference, the executive noted newspapers and the telecoms industries each have different approaches to regulating content, noting one industry would not be held accountable for breaches by the other. For social media companies, the rules should fall "somewhere in between", Reuters reported the executive as saying. He noted Facebook had improved efforts to combat interference in elections, and the company now had 35,000 employees working on reviewing online content and applying security measures. Zuckerberg stated more than 1 million fake accounts were suspended from Facebook on a daily basis but, while expressing pride at the results of its efforts to date, warned the group must "stay vigilant", Reuters wrote. In January, Facebook announced plans to hire 1,000 people in the UK this year, in an aim to boost efforts to remove harmful online content from its platforms.

Facebook Calls-Off F8 Developer Conference

Facebook cancelled its annual F8 Developer Conference due to fears about the Covid-19 (coronavirus) outbreak, outlining plans to hold a series of smaller local and online events instead. The conference, a key part of Facebook's calendar where it typically unveils new features for its suite of apps and services and sets course for the year ahead, was set to be held on 5 and 6 May in San Jose, California. The company told Mobile World Live the 2019 event drew a crowd of around 5,000. Konstantinos Papamiltiadis, Facebook's director of

platform partnerships, said in a blog the decision to ditch the event was a "tough call," but insisted "we need to prioritize the health and safety of our developer partners, employees and everyone who helps put F8 on". "We explored other ways to keep the in-person part of F8, but it's important to us to host an inclusive event and it didn't feel right to have F8 without our international developers in attendance." Papamiltiadis said the main gathering will be replaced by a combination of smaller, locally-hosted events along with "videos and

live streamed content". Additional details about these will be released in the coming weeks. The move follows the cancellation of MWC Barcelona 2020 earlier this month, and comes as companies across the globe brace for expected headwinds caused by the virus. Covid-19 was already tipped to slow 5G deployments in China, and both Apple and Microsoft warned they expect to miss revenue targets for the current quarter due to related supply chain issues.

Huawei Commits to Empower 10,000 Saudi ICT Talents by 2023

Huawei has reiterated its commitment to developing talent within the Kingdom's Information and communications technology sector in line with the goals of Vision 2030. Having recently celebrated the first anniversary of launching its Saudi Talent Enabling Program (STEP), Huawei has reconfirmed the program's aim to benefit 10,000 local talents by 2023. The STEP program focuses on training, enabling, and promoting ICT talent within the Kingdom through three pillars: building a talent alliance, setting talent standards, and communicating talent value. There are a further nine initiatives within the STEP program pillars, several of which Huawei has already unveiled during recent years. These include Huawei's long-running Seeds for the Future initiative which has hosted more than 81 local students, and the Huawei ICT Skills Competition which has captured the interest of over 7,000 participants in Saudi Arabia. Huawei's Future Leaders Initiative has also upskilled over 250 local engineers, while the company's Huawei ICT Academy has established alliances with more than 10 institutions in the Kingdom. Moving forward, the company has also committed to promoting ICT talent insight, an emerging tech on-board training, a Huawei Partners and Customers Training Program, a HCIE Certification Salon, and continuing its

Huawei ICT Job Fair — the second edition of which will be held shortly in Riyadh. Speaking on Huawei's commitment, Dennis Zhang, CEO of Huawei KSA, said: "There is a global shortage of ICT talent. Huawei is committed to addressing this around the world, and in Saudi Arabia in particular. Developing and empowering ICT talent will contribute significantly towards the realization of Vision 2030 which places a strong emphasis on the economic potential of the ICT sector. New talent is required to drive digital transformation on a national and industry-wide scale, which will contribute towards stable, continuous development for the Kingdom." Faisal Al Otaibi, HR Director at Huawei KSA, added: "Advanced technologies are already

playing an instrumental role in moving the Kingdom towards its ambitious goals of increased global competitiveness and sustainability. The people of Saudi Arabia want to be equipped with the knowledge and skills to not only navigate the future digital economy, but to become its pioneers and leaders." Based on its comprehensive talent development strategy, Huawei hopes to continue working with entities from the public and private sectors to build a positive, open, and cooperative ICT talent ecosystem. The ICT sector is part of the foundation of national digital transformation under Vision 2030, making it more important than ever for concerted efforts towards developing talent that will power the industry.

Huawei Builds a Solid Foundation for the Intelligent World 2030

Huawei held its global Industrial Digital Transformation Conference. It was held via live streaming connecting guests from across the world including UK, Switzerland, USA, Germany and Italy with the theme "Hi, Intelligent World". The conference previewed five trends of an intelligent world 10 years' from now and proposed a foundation built on new types of connectivity, computing, platform, and ecosystem. This will enable the intelligent development of a wide variety of industries, including urban development, manufacturing, energy, finance, transportation, and so on. The ASEAN Economic Community, Shenzhen Airport Group, and other customers also shared their insights and experiences in digital transformation. In the future, information flows with new ICT, such as 5G, AI, and IoT, will help us build the foundation from which everything originates. Simply put, the world of 2030 will be intelligent. Standing at the start of a new decade, Huawei believes the intelligent world 2030 will have five features:

1. at a governmental level, people-oriented digital governments will be built to adapt to people's livelihoods better;
2. at an economic level, intelligent robots will make up a critical part of a future labor force;
3. at a social level, digital technology will help equalize the sharing and proper distribution of education, healthcare, and other public resources, achieving digital equality;
4. from a cultural point of view, citizens will be freed from heavy physical labor and tedious repetitive work, and their focus will naturally shift from material value to mental value; and
5. from an environmental point of view, the deployment of various digital technologies, we help us monitor and control carbon emissions more effectively and, as a result, help protect the earth.

Ma Yue, Vice President of Huawei Enterprise Business Group, commented: "The next decade will witness rapid development of new ICT. Huawei believes new types of connectivity, computing, platform, and ecosystem will build a solid foundation for the intelligent world of 2030. Ultra-broadband and high-speed networking built using 5G, Wi-Fi 6, and quantum communications will bridge the physical and digital worlds, laying a foundation for the intelligent world." Mr. Ma continued: "New computing will offer a full-stack, all-scenario solution that covers bottom-layer chips, all the way to upper-layer algorithms, spanning consumers to business and which constitutes the core of intelligent transformation. The converged, shared, and digital platform features high efficiency and openness, enabling customers to focus on their own unique advantages and service innovation, therefore playing a key role in enabling the digital transformation of industries. Based on enterprise business Strategy, Architecture, Policy, and Operations (SAPO), the new ecosystem that provides a single field of expertise allied to multiple skills and is deeply integrated, can offer a more comprehensive customer-oriented business solutions." The intelligent world of 2030 cannot exist without the digital transformation of industries across the spectrum. Huawei has accumulated extensive experience in helping industries such as government, transportation, finance, and electric power achieve digital transformation for the present and the future, through new connectivity, computing, platform, and ecosystem. Currently, more than 700 cities worldwide and 228 of the Fortune Global 500 companies, including 58 of the Fortune Global 100 companies, have selected Huawei as their partner for digital transformation. Dr. Aladdin D. Rillo, Deputy Secretary-General for ASEAN Economic Community commented: "ASEAN's digital economy soared to USD 100 billion for first time in 2019, and is expected to grow to over USD 300 billion by 2025. For governments, business and society, digital transformation is no longer an option but an imperative path to empower the economy and businesses. To further promote digital transformation in ASEAN, new initiatives are currently being pursued such as the development of 5G ecosystem, framework on international mobile roaming, smart manufacturing, and an ASEAN innovation network. But to be successful, we also need the support of the private sector and market players like Huawei particularly in building an innovation friendly ecosystem and addressing issues related to big idea and data privacy." Zhang Lixuan, GM of Digitalization, Shenzhen Airport Group (SAG), talked about how the group delivered digital transformation and constructed a smart airport. The digital transformation of an airport is a complex project but with its vision of "One Airport, One Dream", SAG created a systematic approach to building a fully-digital airport with outstanding

user experience. The Group selected Huawei as its strategic partner for digital transformation, using the Huawei Horizon Digital Platform with cloud-network synergy. The platform integrated six ICT resources - IoT, big data, AI, video cloud, GIS, and ICP – to construct four comprehensive service systems: security, operations control, services, and management. The single-view of airport operations has had significant benefits, including increasing flight punctuality to 87%, and intelligent stand allocation that can complete within seconds, reducing the number of shuttle bus passengers by 4 million annually. This makes Shenzhen Airport become the world's first organization to publish cases on the New Experience in Travel and Technologies (NEXTT) platform. From a security point of view, the new system provides more accurate and intelligent control over terminal areas, airfields, public areas, and cargo areas. The facial recognition solution improves security check efficiency by 60%, reduces the risk of passengers' loss of ID card by taking it out for checking, and meets the differentiated requirements of business passengers. In the future, the 'app' will become an ecosystem that integrates retail and corporate customers, and serve as a technology platform to bring banking services into digital world. The traditional concept of banks' digital transformation was only as a technology transformation for replacing core application systems. However, he believes that real digital

transformation is a process of integrating IT and business teams and that rapid, step-by-step deployment, fast iteration, and technology agility will drive business agility. In the future, 5G will drive significant improvements in app capabilities that will help bring banking services into the digital world, helping branches and account managers regain engage with retail and corporate customers much more regularly. He cited China Merchants Bank as an example. The bank established a private cloud and mobile platform, and opened host functions to manage devices and users, and control mobile network security. It also built a big data platform with decoupled architecture and applied AI and machine learning to the entire business chain to enhance credit risk control. Furthermore, it deployed a financial transaction cloud and moved applications from the host to the cloud, enhancing customer experience and supporting continuous service innovation. Liu Jianming, Director of the Expert Committee on "Smart Grid Technology and Equipment", Industry Development Promotion Center, the Ministry of Industry and Information Technology (MIIT) of China, believes that future power systems will integrate digital technology extensively with traditional power. As digital technologies usage continues to expand in the electric power field, future power systems will evolve toward "universal connectivity, intelligent interaction, high flexibility, and solid security and control." In his speech, Director Liu introduced

several cases of digital transformation practices in China's electric power industry. In 2019, the Qinhai Green Energy Cloud Network Control Platform and Big Data Center supported the Qinhai Province of China for 15 consecutive days using 100% clean energy. When applied to power transmission and distribution services, AI technology improved inspection efficiency, and increased the intelligent ability of equipment identification operations by 90%. ICT is now supporting the daily operations of the public charging infrastructure, serving more than 500,000 electric vehicles in China with a goal of 6.18 million by the end of the year. Recently, the coronavirus outbreak has attracted global attention. The Zhejiang, Jiangsu, and Sichuan subsidiaries of the State Grid Corporation of China (SGCC) analyzed the power index of enterprise resumptions based on big data from the electricity grid. This has helped provide local government authorities with an overview of the resumption of local enterprise production. We are honored to participate in this astonishing era of intelligent development. Huawei Enterprise Group's "Platform + AI + Ecosystem" strategy focuses on cooperation with ecosystem partners, governments and enterprises to build a solid foundation for the intelligent world with new types of connectivity, computing, platform, and ecosystem, and together delivering the promise of the intelligent era.

Huawei Ups Europe Play With 5G Factory

Huawei announced plans to build a wireless communications product factory in France, specialized in 4G and 5G equipment, as part of a previously-reported move by the vendor to boost its position in the European market. The company said in a statement it will invest more than €200 million to set up the plant, and expected the equipment produced to be used mainly in Europe. As part of the construction plans, the factory will have a demonstration center designed

to showcase the wireless base station production, software loading and testing processes. The company stated it will leave the doors open to the center in an effort to demonstrate "Huawei's positive stance on Europe's call for digital sovereignty". It offered assurances it will be able to "cover every link along its value chain and drive local industries forward, both upstream and downstream", including R&D, sales, procurement, production and logistics. The

project, which is predicted to generate €1 billion-worth of products every year, will be among Huawei's "first implementations of its advanced manufacturing technologies in Europe". Huawei stated France was a suitable location for its new plant, as the country had "a mature industrial infrastructure and a highly educated labor pool, and its geographic positioning is ideal".

Huawei and China Mobile Zhejiang Jointly Commercially Develop First 5G Service Experience Management Site

China Mobile Zhejiang (Zhejiang Mobile) officially signed a contract with Huawei on the "Mobile Internet Performance Application" project to build quality monitoring, demarcation, and complaint support capabilities for 5G services such as Cloud VR, video backhaul, etc. With the 5G service experience management solution, Zhejiang Mobile provides end to end service quality management and commercial assurance for new 5G networks, services, and subscribers, providing high-quality and efficient 5G service experience for users. As one of the provinces where China Mobile and China's Ministry of Industry and Information Technology (MIIT) have conducted large-scale 5G tests, Zhejiang Mobile has actively promoted the first commercial 5G networks and invested in 5G service experience management continuously. Zhejiang Mobile joint innovation with Huawei explored new 5G features, such as 5G signaling collection, multi-service experience modeling, quality analysis capabilities, etc., and built a 5G experience management showcase, which is becoming a pioneer in global 5G service experience assurance. There are four key values of the 5G service experience

management solution innovated jointly by Zhejiang Mobile and Huawei. Visible, Manageable, and Improvable 5G new service experience: Focus on user experience, from the perspective of device, pipe, and cloud layers, the solution developed over 100 indicators and appraisal baselines for 12 types of 5G network new services such as Cloud VR and 4K HD live broadcast, implemented consumer oriented and enterprise oriented service quality management standardized on the platform gradually. Intelligent experience analysis supports network optimization and increases 5G camping ratio: Identified poor camping quality and silent blind spots at the early stage of 5G network construction by intelligent analysis of camping ratio based on multi-dimension of users, areas, and terminals, and performed network optimization to resolve problems of poor-QoE cells and users to increase the camping ratio by 20%. Efficient service quality problem analysis improves complaint handling efficiency: With the quick demarcation and analysis capability of multi-scenario 5G service quality complaints, 80% network-side problem complaints are closed, and the

second-line complaint analysis efficiency is improved by 45%. Precise user profile supports 5G service expansion: Based on user behavior, constructed a target 5G user service provisioning profile and worked with marketing department to push a notification SMS message for 5G switching on. The 5G switching on percentage of inactive 5G terminals in the demo area increased by 15%, supporting 5G user development and package subscription effectively. In the future, user experience expectation will become higher and higher with the development of 5G network. This requires Zhejiang Mobile to be able to ensure user experience of diversified 5G services. Huawei, as a strategy partner of China Mobile, has released the 5G Cloud VR Service Experience Standard White Paper. It resolves network problem and customer complaints efficiently by advanced 5G service modeling methodology and user experience management solution to ensure 5G user experience, and improve user experience and loyalty, that provides strong support for the development and efficient operation for China Mobile Zhejiang 5G services.

Huawei Recognized as a January 2020 Gartner Peer Insights Customers' Choice for Wired and Wireless LAN Access Infrastructure

Huawei, a leading global provider of information and communications technology (ICT) infrastructure and smart devices, is excited to share that they were named a January 2020 Gartner Peer Insights Customers' Choice for Wired and Wireless LAN Access Infrastructure. Huawei is the only non-North American vendor named, and has a high 4.7/5 stars as of February 5, 2020 based on 196 ratings. Gartner defines the wired and wireless access LAN infrastructure market as comprising vendors supplying wired and wireless networking hardware and software that enables devices to connect to the enterprise wired LAN or Wi-Fi network. Gartner Peer Insights is an online platform of ratings and reviews of IT software and services that are written and read by IT

professionals and technology decision-makers. Gartner Peer Insights includes

more than 215,000 verified reviews in more than 340 markets. Gartner Peer Insights

Customers' Choice distinctions recognize vendors that are highly rated by their customers, helping enterprise IT leaders make more insightful purchase decisions. On Gartner Peer Insights, Huawei's campus network offerings received a total of 196 reviews from customers in various industries around the world. Customer feedback covers Huawei Ethernet switches and campus core switches, indoor and outdoor access point, cloud managed network platform, among other Huawei products. According to customer feedback, Huawei campus network products and solutions are highly recognized in terms of performance, reliability, and ease of management. "It is our sole aim to provide best-in-class solutions and products that meet customer requirements and deliver customer recognition. As such, we're thrilled to be named a January 2020 Gartner Peer Insights Customers' Choice," said Zhao Zhipeng, President of Huawei Campus Network Domain. "In the future, we will remain committed to customer centricity and continued innovation, and

persist in helping customers embrace a fully connected campus network to accelerate their digital transformation journey. We are also hugely grateful for the feedback they share with us through Gartner Peer Insights. "Here are some excerpts from customers that contributed to Huawei's distinction: "Good implementation experience in our large deployments. 12,000+ access points are installed in 55 Universities across the country along with core, aggregation and access switches. The overall experience with Huawei access points is excellent." – Feedback from an education customer; "Huawei WLAN products have good signal quality, have wide coverage, and are stable. During the use of Huawei WLAN products, there are few call drops. In addition, the price advantages are obvious and after-sales services are available." – Feedback from a CTO in the retail industry. Huawei's continued innovation and leadership in the campus network domain has paved the way for Huawei to earn the long-lasting trust of customers. In 2019, Huawei

launched a one-of-a-kind experience-centric CloudCampus Solution. This innovative solution helps customers implement automatic management, intelligent O&M, and full-layer openness of campus networks, shortening the time to market (TTM) of enterprise services and achieving real-time assurance of service experience and quality. Huawei also released the all-new CloudEngine S series campus switches built for the Wi-Fi 6 era. Featured products include the flagship campus core switch – CloudEngine S12700E – which delivers six times the industry average performance, meeting the network evolution requirements of large enterprises and campus networks for the next 10 years. In the WLAN field, Huawei AirEngine, powered by Huawei 5G, has earned widespread trust from global customers. According to the latest report of Dell'Oro Group, the market share of Huawei Wi-Fi 6 ranks No. 1 globally (excluding North America) from Q3 2018 to Q3 2019.

British Government Allows Huawei in Its 5G Roll-Out

Victor Zhang, Vice President at Huawei, has made the following statement: "Huawei is reassured by the UK government's confirmation that we can continue working with our customers to keep the 5G roll-out on track. This evidence-based decision will result in a more advanced, more secure and more cost-effective telecoms

infrastructure that is fit for the future. It gives the UK access to world-leading technology and ensures a competitive market. We have supplied cutting-edge technology to telecoms operators in the UK for more than 15 years. We will build on this strong track record, supporting our customers as they invest in their 5G

networks, boosting economic growth and helping the UK continue to compete globally. We agree a diverse vendor market and fair competition are essential for network reliability and innovation, as well as ensuring consumers have access to the best possible technology."

Microsoft Brings Three New Surface Devices to Businesses and Consumers in the UAE Market

Microsoft expanded its award-winning Surface range for the UAE market, as it unveiled three new versatile devices in the country, covering use cases for both commercial and consumer customers. The Surface Pro X, Pro 7, and Laptop 3 continue the brand's tradition of best-in-class productivity, security, mobility and speed, introducing new processors and device categories. "The United Arab Emirates has shown

great economic ambition in its National Vision initiatives and in the support of digital transformation throughout the public and private sectors," said Mirna Arif, Surface Business Group Director at Microsoft Middle East and Africa. "Innovation is at the heart of the national ethos, and it requires the right tools to stay connected and productive. Microsoft's Surface family is designed for just that kind of versatility and

productivity, so people can work and play faster, better, and stay connected wherever they are. As with previous Surface devices, we have delivered best-in-class upgrades for our new editions to the family, to ensure that individuals and organisations have access to the optimal performance they need to achieve more." The Surface Pro 7 takes Microsoft's iconic two-in-one design to the next level, with a faster and even more versatile device for professionals on the go. Powered by Intel's 10th-generation core processor, Fast Charging, all-day battery and Instant On, the Pro 7 also includes superior connectivity with USB-C™ and USB-A ports. The Surface Pro X is Microsoft's thinnest, lightest and most powerful edge to edge 2-in-1 laptop with LTE and 13" touchscreen.

Ultra-thin and always connected, Surface Pro X combines ultimate mobility with blazing-fast LTE connectivity and amazing graphics. Aimed squarely at portability and connectivity, it features Microsoft proprietary SQ1 processor, designed in collaboration with mobile-computing leader Qualcomm. Businesses and consumers across the UAE will now have access to the latest editions of Microsoft's most beloved Laptop series. From work to style, the new Surface Laptop 3 helps people make an impact with the thin, light, and elegant design, a new choice of 2 rich tone-on-tone colours and metal keyboard finishes, and a new choice of vibrant 13.5- or 15-inch touchscreens. Laptop 3 features improved speed and performance with the latest 10th Gen Intel® Core™

processor, up to 11.5 hours battery life, and Instant On. The 15-inch consumer device is powered by the AMD Ryzen Surface Edition processor. "The Surface family has always transcended market expectations – whether in the consumer or corporate segment – providing devices at the leading edge of innovation, and establishing new benchmarks for excellence," said Arif. "At each iteration, we elevate the entire Microsoft ecosystem, ensuring our devices evolve into a line of products that cover the widest possible range of individual and business use cases – versatile, adaptable and powerful." The Surface Pro X, Surface Pro 7, and Surface Laptop 3 will be available at the beginning of February from authorised retailers and partners across the United Arab Emirates.

Microsoft Charts a New Data Center in Spain, Tightens Partnership with Telefónica

As part of an expanded partnership with Telefónica, Microsoft will open a new data center region in Spain. In addition to leveraging Microsoft's data center in Spain, Telefónica will lean on Microsoft to accelerate its internal digital transformation by picking Microsoft as its "strategic" cloud partner. On the flip side, Microsoft will use Telefónica's infrastructure to deliver low latency, security and assured bandwidth services to mutual customers for new use cases around Industry 4.0, 5G and edge computing. The deal is similar to the one that Microsoft struck last year with AT&T, which included AT&T using Microsoft's cloud to move most of its non-network workloads to the public cloud by 2024 as well as combined go-to-market strategies for both companies. Microsoft and Telefónica will also collaborate on go-to-market plans in the telco's footprint. As part of the expanded partnership, Microsoft will serve up its cloud services – including Microsoft Azure, Microsoft 365, Microsoft Dynamics 365 and Microsoft Power Platform – from the new data center region in Spain. Telefónica has deployed Microsoft 365 to its global employee base across the 14 countries in its footprint. As a strategic partner for its multi-cloud strategy, Microsoft will also train hundreds of Telefónica employees on Microsoft Cloud services. "The opening of a Microsoft data center region in Spain is a game changer, a key milestone in our strategic partnership that will boost Spain's industrial fabric and digital economy," said José María Álvarez-Pallete, chairman and CEO of Telefónica, in a statement. "Cloud is one of the key priorities in Telefónica, as we announced in November, with the launch of Telefónica Tech, the new unit to boost the solid growth of digital services. This

MICROSOFT TO OPEN NEW DATACENTER REGION IN SPAIN AND EXPAND STRATEGIC PARTNERSHIP WITH TELEFÓNICA

global strategic partnership with Microsoft will certainly help to achieve that objective." While expanding its partnership with Telefónica won't vault Microsoft past Amazon Web Services (AWS) as the top public cloud provider, it builds on top of the key partnerships that Microsoft announced last year, which, in addition to AT&T, included SK Telecom, NTT Communications and Reliance Industry. Prior to Satya Nadella coming on board as CEO in 2014, Microsoft wasn't known for collaborating with other companies, but that has changed dramatically as enterprises are demanding cloud-based services and applications. According to a recent report by Synergy Research Group (SRG), AWS had 33% of the market share at the end of the fourth quarter followed by Microsoft (18%), Google (8%), IBM (6%), Alibaba (5%), and Salesforce (3%.) Last month, Microsoft reported that Azure's revenue grew by 62% in the second quarter, which was a sequential increase over 59% in the prior quarter. Microsoft doesn't breakout Azure's revenues. Earlier this month, a U.S. judge granted a preliminary injunction to temporarily pause Microsoft from working on the $10 billion Joint Enterprise Defense Infrastructure (JEDI) cloud contract that Microsoft won over AWS on October 25.

Petrofac Selects Microsoft IoT Toolkit to Build Digitally Transformative Connected Construction Platform

Microsoft announced that leading international energy service provider Petrofac has chosen Azure's Internet of Things for its Connected Construction platform designed to accelerate digital transformation at its project worksites. "Microsoft's mission is to empower every individual and organization on the planet to achieve more," said Sayed Hashish, General Manager, Microsoft UAE. "Petrofac serves some of the largest oil, gas and renewable energy companies in the world and is known as a leader in its segment. The company is well underway with its digital transformation journey. Its potential to engage customers, empower employees and optimize operations for assured and ultra-efficient service delivery has been accelerated by the power of the intelligent cloud and the intelligent edge." In conjunction with Accenture Industry X.0, Petrofac developed Connected Construction on Azure and combined it with Azure IoT Edge analytics and PaaS

cloud components to create a scalable ecosystem capable of accommodating many different types and sizes of project. "Petrofac designs, builds, operates and maintains energy facilities, supporting our customers to unlock more value across the life cycle of an asset," said Fady Sleiman, Chief Digital Officer, Petrofac. "We're future-proofing our business, combining technology with our engineering, construction and operations know-how to find new solutions to today's challenges. With Microsoft and Accenture, we've created Connected Construction which tracks people, equipment and materials on site, enabling real-time insights and decision making which, in turn, improves performance." Azure's IoT platform allows innovators to build rich, visual Internet of Things applications that connect, manage, and monitor devices securely and at scale. With the options to run SaaS or PaaS deployment models, solutions builders can deliver real edge intelligence to field

operatives that allows better, data-driven decisions through machine learning and advanced analytics. Azure IoT Edge moves cloud analytics and custom business logic to devices for organizations that prioritize business insights over data management, allowing them to scale out solutions by packaging heuristics into standard containers, deploying them to edge devices and monitoring everything from the cloud. Following a significant surge in the demand for its cloud services in the region, Microsoft earlier this year launched its secure, flexible and intelligent cloud to regional customers through two dedicated cloud data centers, one in Dubai and one in Abu Dhabi. These facilities will cater specifically to enterprises in the Middle East. Organizations in the region's energy sector can make the most out of the Microsoft Cloud by availing themselves of enterprise-grade reliability and performance, combined with data residency and the broadest compliance.

Microsoft Arabia Launches the Latest Surface Devices to Support Digital Transformation in Saudi Arabia

Microsoft Arabia announces the expansion of the Surface family in the Saudi market, revealing four new devices: (Pro X, Pro 7, Laptop 3, and the Surface Hub 2S), in order to keep pace with rapid digital transformations in Saudi Arabia according to the targets of the "National Transformation" program, which is one of

the Kingdom's 2030 vision achievement of programs. "The new Surface line up covers a wide range of use cases for consumers and commercial customers in both public and private sectors, and achieves the main pillars of the third plan for the Saudi digital transformation strategy." said Mirna Arif (Surface Business Group Director

for Middle East and Africa). Arif also announced that the availability of Surface Hub 2S for Commercial customers will follow in the coming period. The Surface Pro 7 takes Microsoft's iconic two-in-one design to the next level, with a faster and even more versatile device for professionals on the go. Powered by Intel's 10th-generation core processor, Fast Charging, all-day battery and Instant On, the Pro 7 also includes superior connectivity with USB-C™ and USB-A ports. The Surface Pro X is Microsoft's thinnest, lightest and most powerful edge to edge 2-in-1 laptop with LTE and 13" touchscreen. Ultra-thin and always connected, Surface Pro X combines ultimate mobility with blazing-fast LTE connectivity and amazing graphics. Aimed squarely at portability and connectivity, it features Microsoft proprietary SQ1 processor, designed in collaboration with mobile-computing leader Qualcomm. Businesses and consumers across the Kingdom will now have access to

the latest editions of Microsoft's most beloved Laptop series. From work to style, the new Surface Laptop 3 helps people make an impact with the thin, light, and elegant design, a new choice of 2 rich tone-on-tone colors and metal keyboard finishes, and a new choice of vibrant 13.5- or 15-inch touchscreens. Laptop 3 features improved speed and performance with the latest 10th Gen Intel® Core™ processor, up to 11.5 hours battery life, and Instant On. The 15-inch consumer device is powered by the AMD Ryzen Surface Edition processor. "The Surface family has always transcended market expectations – whether in the consumer or corporate segment – providing devices at the leading edge of innovation, and establishing new benchmarks for excellence," added Arif. "At each iteration, we elevate the entire Microsoft ecosystem, ensuring our devices evolve into a line of products that truly enables the new modern workplace: versatile, adaptable and powerful." Bringing together Windows 10, Microsoft Teams, Office 365, Microsoft Whiteboard and the intelligent Microsoft Cloud, Surface Hub 2S enables teams to work in entirely new ways and gives them the flexibility to come together wherever they work best. It takes something that has long been a fixture in the conference room – the shared screen – and transforms it into a mobile computer, built for teams. Surface Hub 2S fits easily into any space, from a traditional conference area to a compact meeting room. A vibrant 4K+ 50-inch multi-touch display offers a lustrous canvas for collaboration, with the best pen and touch experience and the highest resolution found in a device in its class. The enhanced 4K camera, crystal clear speakers and far-field mic arrays help everyone on the team – local or remote – see and engage with the meeting content and each other, making it feel almost like everyone is in the same room together.

Microsoft and Genesys Expand Partnership to Help Enterprises Seize the Power of the Cloud for Better Customer Experiences

Microsoft Corp. and Genesys have expanded their partnership to provide enterprises with a new cloud service for contact centers that enables them to deliver superior interactions for customers. With the omnichannel customer experience solution Genesys Engage™ running on Microsoft Azure, enterprises have the security and scalability they need to manage the complexities involved with connecting every touchpoint throughout the customer journey. Genesys Engage on Microsoft Azure will be available in late 2020. To accelerate adoption, the companies are providing Genesys Engage on Microsoft Azure through a joint co-selling and go-to-market strategy. Customers will benefit from a streamlined buying process that puts them on a clear path to the cloud.

The power of Genesys Engage on Microsoft Azure

With its multitenant architecture, Genesys Engage on Microsoft Azure gives customers the ability to innovate faster and improve their business agility. In addition, by running the Genesys customer experience solution on this dependable cloud environment, enterprises will be able to maximize their investment in Microsoft Azure through simplified management and maintenance requirements, centralized IT expertise, reduced costs, and more. These solutions make it easier for enterprises to leverage cloud and artificial intelligence (AI) technologies so they can gain deeper insights and provide tailor-made experiences for their customers. Nemo Verbist, senior vice president of Intelligent Business and Intelligent Workplace at NTT Ltd., one of the top five global technology and services providers for the world's largest enterprises and a partner of both Microsoft and Genesys, sees great value in the partnership. Verbist said, "Many of our customers have standardized on Microsoft solutions, and Genesys Engage on Microsoft Azure gives them an additional opportunity to take advantage of their investment. Together, these solutions provide enterprises a secure and powerful foundation to communicate with their customers in creative and meaningful ways." "Large contact centers receive an exceptionally high volume of inquiries across a growing list of channels and platforms. One of the biggest challenges is connecting the details of every interaction across all channels to ensure each customer has a seamless experience," said Kate Johnson, president, Microsoft U.S. "By leveraging Microsoft's Azure cloud and AI technologies, Genesys is helping enterprises create a seamless customer journey with Microsoft's trusted, secure and scalable platform." "We are thrilled to give large enterprises the opportunity to run their mission-critical customer experience platform in the cloud environment they already know and trust — Microsoft Azure," said Peter Graf, chief strategy officer of Genesys. "Together, we're making it simpler for even the most complex organizations to transition to the cloud, enabling them to unlock efficiencies and accelerate innovation so they can build deeper connections with customers." The companies are also exploring and developing new integrations for Genesys and Microsoft Teams, Microsoft Dynamics 365 and Azure Cognitive Services to streamline collaboration and communications for employees and customers. More information will be released about these upcoming integrations later this year.

Microsoft Launches Three New Surface Devices in Kuwait

Microsoft has unveiled three new versatile devices to augment its award-winning Surface range, covering use cases for both commercial and consumer customers and demonstrating the company's ongoing commitment to Kuwait's economic development. The Surface Pro X, Pro 7, and Laptop 3 continue the brand's tradition of best-in-class productivity, security, mobility and speed, introducing new processors and device categories. "Kuwait's Vision 2035 shows a clear commitment to economic development in a region well known for innovation and bold national strategies," said Mirna Arif, Surface Business Group Director at Microsoft Middle East and Africa. "Innovation and digital transformation go hand in hand; that is why Microsoft's mission is to empower every individual and organization on the planet to achieve more. From its inception, Microsoft's Surface family has been designed in collaboration with our customers, by listening to their stories and discovering what they need. Versatility and productivity come as standard, so each device allows people

to stay connected wherever they are." The Surface Pro 7 takes Microsoft's iconic two-in-one design to the next level, with a faster and even more versatile device for professionals on the go. Powered by Intel's 10th-generation core processor, Fast Charging, all-day battery and Instant On, the Pro 7 also includes superior connectivity with USB-C™ and USB-A ports. The Surface Pro X is Microsoft's thinnest, lightest and most powerful edge to edge 2-in-1 laptop with LTE and 13" touchscreen. Ultra-thin and always connected, Surface Pro X combines ultimate mobility with blazing-fast LTE connectivity and amazing graphics. Aimed squarely at portability and connectivity, it features Microsoft proprietary SQ1 processor, designed in collaboration with mobile-computing leader Qualcomm. Businesses and consumers across the UAE will now have access to the latest editions of Microsoft's most beloved Laptop series. From work to style, the new Surface Laptop 3 helps people make an impact with the thin, light, and elegant design, a new choice of 2 rich tone-on-tone colors and

metal keyboard finishes, and a new choice of vibrant 13.5- or 15-inch touchscreens. Laptop 3 features improved speed and performance with the latest 10th Gen Intel® Core™ processor, up to 11.5 hours battery life, and Instant On. The 15-inch consumer device is powered by the AMD Ryzen Surface Edition processor. "The Surface family has a device for everyone, from the most casual everyday uses, to the more demanding corporate ones," added Arif. "At each iteration, we elevate the entire Microsoft ecosystem, ensuring our devices evolve into a line of products that cover the widest possible range of individual and business use cases – versatile, adaptable and powerful. Teacher or student, artist or engineer, individual or business – your Surface companion is your partner in innovation." The Surface Pro X, Surface Pro 7, and Surface Laptop 3 will be available at the beginning of February from authorized retailers and partners across Kuwait.

Nokia Wins Orange Slovensko Deal for 5G RAN

Finnish vendor Nokia says it has been selected by Orange Slovensko, Slovakia's leading mobile network operator by subscribers, to prepare its Radio Access Network (RAN) for 5G. In a press release today (10 February), the equipment maker said that further enhancement of Orange Slovensko's RAN with 5G technology will enable a wide range of innovative services for consumer and enterprise customers across Slovakia, and notes that the deal – which builds on long-term end-to-end network collaboration between the two parties – includes RAN equipment, software, NetAct management solution and automation tools. Nokia confirmed that going forward, Orange's network in Slovakia will utilize Nokia's 5G New Radio (5G NR)-based AirScale hardware and software for the new 5G frequency bands.
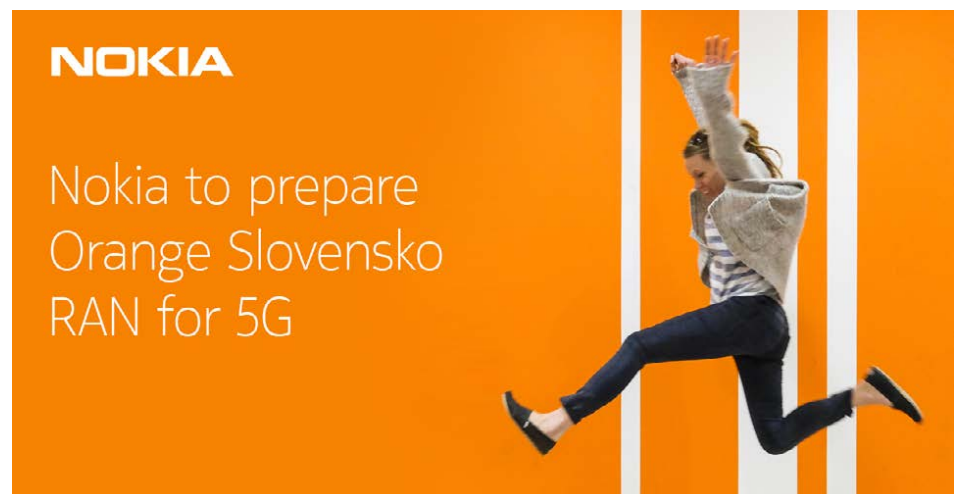
Nokia will also provide its state-of-the-art NetAct Management System together with advanced automation and efficiency tools. The deal will support Orange Slovensko in

the evolution of its recently-modernized AirScale-based 4G network, by activating 5G in existing bands through pure software upgrades.

Nokia Launches End-to-End 4G and 5G NR Slicing

Nokia has announced the launch of new end-to-end slicing network functionality for 4G and 5G New Radio (NR). The solution will support connectivity from 4G and 5G devices over the sliced network to applications running in private and public clouds and will be available this summer. It was developed in partnership with A1 Austria and Telia Finland and can be deployed via a software upgrade into existing LTE and 5G NSA networks and subsequently 5G standalone SA networks.

The slicing continuity between LTE and 5G NR allows operators to maximize their network coverage for new mobile connectivity services. 'We are proud to be among the first operators worldwide to successfully demonstrated end-to-end network slicing, spanning the core, transport and radio over our 4G as well as 5G networks,' commented Alexander Kuchar, Director of Technology and Future Services at A1 Telekom Austria Group, adding: 'For our business customers, it will be a huge advantage to be able to benefit from dedicated mobile communication services, exclusive capacities, strong data security and transmission with high reliability and low latency by integrating A1's highly reliable and excellent infrastructure and services offering into their internal processes. Network slicing in 4G and extended in 5G will play a key role in allowing A1 to develop new market segments and revenue streams.'

Nokia Partners with Iliad Group to Roll out 5G in France and Italy

Nokia announced that it will extend its long-standing partnership with French mobile operator, Iliad Group, to roll out 5G networks across France and Italy. The 5G deal will focus on network modernization and 5G introduction in France and 5G introduction in Italy making 5G available to 17 million Iliad subscribers across both countries. Nokia has worked closely with Iliad Group in France since 2012 and in Italy since 2018 on the rollout of both 3G and 4G, now adding 5G networks to its portfolio. Iliad Group will install Nokia's newest radio access technology, AirScale, allowing it to capitalize on early 5G networks whilst supporting 4G/LTE and 5G in the same radio access system. This versatility will enable Iliad Group to offer new services to both consumers and businesses while also future-proofing the radio network. The installation of 5G massive MIMO antennas will ensure Iliad subscribers can make the most of the ultra-low latency and high-bandwidth capabilities of 5G. Thomas Reynaud, Iliad Group's CEO, said:

"We want to offer our customers the best possible 5G experience and that is why we have chosen to strengthen and accelerate our relationship with Nokia as we enter the 5G era. Nokia's innovative 5G technologies and solutions will enable us to launch quickly and efficiently, delivering a superior network performance whilst also securing us against future challenges." Tommi Uitto,

President of Mobile Networks at Nokia, commented: "We are delighted to continue our long-standing relationship with Iliad to roll out 5G networks across France and Italy and build out a world-class network for businesses and consumers alike. The radio technologies will give Iliad the flexibility to quickly and smoothly launch a future-proof 5G network."

Nokia Snaps Up Optical Networking Vendor Elenion

Nokia announced that it's buying privately held optical networking company Elenion Technologies, but didn't say how much it was paying. Elenion designs and develops integrated system-on-chip optical engines for telecom, data center and networking applications. Nokia is buying Elenion to beef up its optical networking business and broaden its portfolio to telecom operators. New York City-based Elenion makes integrated, low-cost silicon photonics technologies for short-reach and high-performance optical interfaces. "As a world-class provider of silicon photonics solutions, advanced packaging and custom design services, Elenion provides a strong strategic fit for Nokia," said Nokia's Sam Bucci, head of optical networking, in a statement. "Its solutions can be

readily integrated into Nokia's product offerings and address multiple high growth segments including 5G, cloud and data center networking. When combined with Nokia, Elenion technologies will accelerate the growth and scale of Nokia's optical networking business, while enabling us to cost-effectively address new markets." Having ownership of Elenion's key assets brings time-to-market and cost advantages to Nokia's broad portfolio of networking solutions by controlling the scale and economies of silicon design and manufacturing to the optical supply chain. Elenion builds integrated photonic engines based on its silicon photonics platform, running in a major CMOS (complementary metal–oxide–semiconductor) foundry. Within this platform, the company can

build optical engines at both 1310 nm and 1550 nm, at speeds up to 600G on a single wavelength of light. The applications for its technology range from hyperscale computing to telecommunications. Elenion was founded in 2014 and worked closely with Coriant prior to coming out of stealth mode in 2016. The planned deal is expected to close in the first quarter of 2020, subject to regulatory approvals and customary closing conditions. Last year Cisco paid $2.6 billion to buy coherent optics company Acacia Communications. Acacia had three product categories—pluggable modules, semiconductors and embedded modules—that were folded into Cisco's Optical Systems and Optics division.

Nokia Completes 5G Core Standalone Network Trial with Japan's KDDI

Nokia and KDDI Corporation, a leading telecoms company in Japan, have completed a 5G core standalone (SA) network trial, moving the operator closer to being able to provide 5G-enabled services. The standalone trial, using Nokia's 5G AirGile cloud-native core solution, was conducted entirely independently of previous generations' mobile network architecture. With a comprehensive 5G core portfolio, Nokia is well placed to assist KDDI in analyzing the network evolution steps and early deployment of 5G core Stand Alone services, like network slicing in which service providers virtually partition network capacity to subscribers based on customized use case needs. Nokia's 5G AirGile cloud-native core can be rolled out in a traditional network environment or a cloud environment and is fully compliant with 3GPP Release 15 5G core functions. Evolution of the core is key to the success of 5G, and decoupling data plane and control plane functions allows for more efficient, automated management of increasingly complex networks. In this trial NOKIA applied a service-based architecture to the 5G control plane, moving control functions completely into a cloud-based environment which provides operators with improved

scalability, velocity and flexibility. The trial allows KDDI to highlight how a 5G control plane can utilize the communication model of today's web services to create multiple software instances in a cloud environment. As KDDI plans to evolve from a non-standalone (NSA) 5G core network to a full 5G SA core, the trial ensures both parties understand the key requirements, roadmap and performance of a 5G core SA deployment. With a 5G core SA network, consumers can experience the true benefits of 5G by fully leveraging enhanced Mobile Broadband (eMBB), enhanced

Machine Type Communication (eMTC) and Ultra Reliable Low Latency Connectivity (URLLC). John Harrington, Head of Nokia Japan, said: "For Nokia, 5G is much more than radio. It's an end-to-end network transformation. We are pleased to have successfully completed this 5G core SA network trial together with KDDI, as it marks a crucial milestone for KDDI's 5G SA deployment as well as for Japan's 5G. Nokia will continue to contribute to the best of 5G and the cloud to enhance business processes and bring new applications and benefits to more markets and consumers."

NOKIA

Nokia completes 5G core standalone network trial with Japan's KDDI

Nokia Launches Cloud-Native Network Operations Software with Extreme Automation for 5G

Nokia has announced the launch of the Nokia Network Operations Master to provide communication service providers (CSPs) with highly-automated and scalable software for managing their 5G networks. As 5G adds new layers of technical complexity, CSPs will require an intelligent management system to deal with the fast-increasing number of physical and virtual network events that will place heavy workloads on network operation centers. Network Operations Master is a new addition to Nokia's network management portfolio, which delivers best-in-class tools for troubleshooting, administration, software management and configuration management. Until now, existing network management systems used for 2G/3G/4G networks have been largely manually driven. They have also been incapable of scaling up to the needs of network evolution to cloud at scale and 5G; and managing the volume

of network "slices", parts of network capacity tailored to different subscriber and application needs. With a software-driven approach, machine learning techniques and customizable operations, Network Operations Master allows these processes to be automated and simplified, while ensuring that existing operations functionalities are kept. By automating actions in milliseconds in response to a wide variety of network events, Network Operations Master significantly reduces workloads of repetitive actions and allows CSP operation centers to concentrate on the most critical network events. Network Operations Master is built on Nokia's cloud-native Common Software Foundation (CSF) designed to deliver applications that are hardware- and vendor-agnostic, and easy to deploy, integrate, use and upgrade. Dana Cooperson, Research Director at Analysys Mason, said: "5G networks will require significantly more operations

automation than past networks in order to achieve promised levels of efficiency and new service support. Nokia's Network Operations Master is a cloud-native network management system that is underpinned by machine learning and automated actions and provides the types of tools mobile network operations teams need now for 5G." Ron Haberman, Chief Technology Officer, Nokia Software, said: "With 5G forcing traditional functions, like revenue management and customer care, to the cloud and helping drive software deeper into the network, communication service providers need a modern approach to performing network operations that is automated, more efficient and scalable. The Nokia Network Operations Master delivers these capabilities and allows our customers to perform lifecycle operations with ease, efficiency, and confidence."

Orange France Selects Nokia for 5G Deployment

Nokia has been selected by Orange France to provide it with an end-to-end 5G offering, including RAN, advanced automation tools, network management solutions and associated professional services. Nokia will initially support Orange's 5G commercial launch by enabling the rollout of its Single RAN (SRAN) network for 5G through software upgrades, streamlining the initial steps to build 5G. It will also

introduce 5G New Radio (5G NR)-based AirScale hardware and software for the new 5G frequency bands. Fabienne Dulac, Deputy CEO of Orange Group and CEO of Orange France, stated: 'For Orange, the deployment of 5G represents a huge challenge and is one of the main priorities of our Engage 2025 strategic plan. We are delighted to be pursuing our partnership with Nokia, a key long-term partner, in order

to develop a powerful and innovative 5G network. 5G will enable the development of new use-cases and new services and will provide an enriched experience for our customers – both in the consumer and business segments. Through this agreement, Orange reaffirms its ambition to being network leader.'

Nokia and PTCL Build Pakistan's First 200G Optical Network for Superfast Broadband

Pakistan Telecommunication Company Limited (PTCL) has deployed Nokia's technology to expand the capacity of recently installed 100G transport network to 200G optical network for both domestic and international traffic. This capacity expansion has been carried out in the major cities of Islamabad, Lahore and Karachi to keep pace with the growing demands of capacity created by ever-increasing consumption of broadband by

individuals as well as enterprises. With this, PTCL becomes the first operator in Pakistan to deploy high-performance 200G 8 Quadrature Amplitude Modulation (QAM) in the country, an optical long-haul technology offering more capacity at lower cost. The up gradation of its optical network allows PTCL to proactively address the growing demands of bandwidth, enabling its enterprise and individual users in Pakistan's largest

cities to use high-bandwidth services and applications such as HD and 4K video. In addition, the network upgradation allows PTCL to flexibly enhance network capacity with the Software Defined Network (SDN) capabilities of the Nokia optical solution. Further, the unique flexgrid technology allows PTCL to easily upgrade to 300G or 400G in the future over the same installed base. Saad Muzaffar Waraich, Chief Technology & Information Officer, PTCL,

said: "Being consistently a top-class service provider involves continuously modernizing and upgrading the network as per the changing consumption patterns. In view of this, we have enhanced the existing capacity from 100G optical network to 200G to take care of the growing traffic in these cities. Nokia's technology and expertise helped us to deploy 100G and enhance customer experience, so its 200G technology is also the right choice for expanding network capacity." Carlo Corti, Director of the Optics Business Development, MEA, Nokia, said: "Our field-proven technology enables PTCL, in its unwavering commitment, to provide the best-in-class network experience to its

subscribers. It allows PTCL to differentiate its services based on quality. With our 200G technology, PTCL is now in a position to cost efficiently address the ever-growing demand for capacity."

Overview of the solution deployed:

- Nokia 1830 PSS allows service providers to deploy services quickly and to maximize network capacity and efficiency.
- By using PTCL's extensive fiber footprint, Nokia DWDM (Dense Wavelength Division Multiplexing) network provides multipath redundancy against multiple fiber cuts hence ensuring higher network availability SLAs.
- Reconfigurable Optical Add-Drop

Multiplexers (ROADMs) technology helps service providers to meet an unpredictable increase in traffic.

- 8-QAM increases spectral efficiency allowing service providers, like PTCL, to maximize the available resources. QAM is a method of combining two amplitude-modulated (AM) signals into a single channel, thereby increasing the effective bandwidth twofold.
- Nokia's full turnkey services including network design, planning and optimization, project management of site acquisition, civil work construction, and network implementation were used to deploy the network.

PCCW Global

Viu Reaches 41.4 Million Monthly Active Users and 5.7 Billion Video Views; Grows Video OTT Revenue by 32% in 2019

Viu, a leading pan-regional OTT video service from PCCW Media Group, achieved new milestones in 2019 that demonstrate the rapid growth of a highly engaged user base and continual increase in monetization reflected in revenue for the OTT video segment. Viu reached 41.4 million monthly active users (MAU) at the end of 2019, representing an increase of 35% over 2018. Additionally, video views grew 69% to 5.7 billion year-over-year. The expanding user base and increased engagement have supported the growth in its video segment revenue which grew by 32% in 2019.

Viu Original Among Most Viewed

More than 40% of Viu'ers have watched Viu Original productions and those titles are ranked within the top five shows viewed, amongst all new titles launched in 2019. Viu focuses on three key areas when developing Viu Original - creating original properties based on analytics and insights of consumption on our platform; innovating new production concepts such

as My Bubble Tea (Thailand), a drama leveraging youth-oriented stories and online fan fictions; and locally adapting globally acclaimed properties, such as Black (Malaysia).

Viu's Leadership Position According to App Annie Ranking

Viu ranked number two in "IAP Revenue", "Monthly Active Users", "Total Time" and "Avg Time per user" respectively in December 2019 among top video streaming apps (entertainment category) in Greater Southeast Asia (Hong Kong, Indonesia, Malaysia, Philippines, Singapore and Thailand) as verified by App Annie. This substantiates the scale of Viu's user base as well as the quality of our users as demonstrated by the high engagement time as the number of users continue to grow. Ms. Janice Lee, Managing Director PCCW Media Group and Chief Executive Officer of Viu, said, "We have a passion for storytelling that cuts across languages and cultural settings, and are drawn to universal stories told through a local lens.

In 2020, Viu continues to bring the widest and most popular Korean content and Viu Original productions to online audiences across markets in Southeast Asia and the Middle East. We look forward to showcasing these works from Asian creative talents to more audience internationally. We are delighted to see an increasing appetite for Asian content from audience globally as evidenced by the sweeping Oscar wins for Parasite this year, which can be watched on Viu in Indonesia, Malaysia, Thailand, Singapore and the Philippines starting this month." Ms. Lee added, "We thank our partners and Viu'ers for enabling us to reach new heights, taking our service to scale and improving our service based on feedback through content usage. This year we will continue to develop original content and identify opportunities to build up local talent ecosystems in Asia, along the lines of the Viu Pitching Forum and Viu Shorts! Competitions which we established."

A Regional Leader in OTT Video Entertainment - Dec 2019 (Greater SEA) ⊙ viu

All Data and information below has been provided and verified by App Annie

Rank	IAP Revenue[1] (in-app purchase)	Monthly Active Users[2]	Total Time[3]	Avg Time per user[4]
1	Netflix	Netflix	Netflix	Netflix
2	Viu	Viu	Viu	Viu
3	WeTV	iflix	iWant TV	Youtube Kids
4	V – Live Broadcasting	TrueID	Youtube Kids	iWant TV
5	MONOMAXXX	iWant TV	WeTV	AIS PLAY
6	TrueID	LINE TV	iflix	HOOQ
7	HBO GO Singapore	Google Play Movies and TV	TrueID	Iflix
8	Iflix	YouTube Kids	Twitch	TrueID
9	HOOQ	HOOQ	HOOQ	LINE TV
10	iQIYI	AIS Play	LINE TV	Google Play Movies and TV

Viu ranked No. 2 in "IAP Revenue", "Monthly Active Users", "Total Time" and "Avg Time per user" in December 2019 among top video streaming apps (entertainment category) in Greater SEA (Hong Kong, Indonesia, Malaysia, Philippines, Singapore and Thailand) [5].

Source: App Annie Intelligence data by using combined data and estimates from iPhone and Android Phone.

Tech Mahindra Recognized as Global Leader on Climate Change for Four Years in a Row

Tech Mahindra, a leading provider of digital transformation, consulting and business reengineering services and solutions announced today that it has been recognized as a global leader on climate change for four years in a row. Tech Mahindra is one of the only four Indian companies to secure a position in the Climate Disclosure Project (CDP) Global Supplier A List in 2019 for engaging with its suppliers on climate change. Tech Mahindra has been recognized for its actions and strategies to reduce emissions and manage climate risks in its supply chain in the past reporting year, by Climate Disclosure Project (CDP), an international Non-Government Organization (NGO) that drives sustainable economies. Sandeep Chandna, Chief Sustainability Officer and Chief Customer Officer, Tech Mahindra said, "With an eye on driving equitable business growth, we at Tech Mahindra are committed to deliver innovative solutions without adversely affecting the environment. Being featured on the Global Supplier A List under the Carbon Disclosure Project among the four other

Indian companies, is indeed a testimony of our sustained efforts towards realizing the climate change goals. As part of our TechMNxt charter, we have incorporated reduction of emissions as a key aspect to every function's mandate and our overall business strategy." Over 4,800 companies in total were assessed by CDP and given a Supplier Engagement Rating, based on answers to selected questions about governance, targets, scope 3 emissions, and value chain engagement of their

response to the CDP 2019 climate change questionnaire and their overall CDP climate change score. Tech Mahindra is among the top 3% of organizations assessed by CDP, one of the 159 companies featured on the Leaderboard this year. Dexter Galvin, Director of Corporates and Supply Chains at CDP, said, "Congratulations to all the companies on the CDP Supplier Engagement Leaderboard for this year. They are showing leadership on engaging their suppliers to manage climate risk and

TECH MAHINDRA RECOGNIZED AS GLOBAL LEADER ON CLIMATE CHANGE FOR FOUR YEARS IN A ROW

Tech Mahindra is one of the only 4 Indian companies to secure a position in the Climate Disclosure Project (CDP) Global Supplier A List in 2019

cut emissions. Given that supply chain emissions are on average 5.5 times as high as a company's operational emissions, this couldn't be more crucial. If we are to achieve the goals of the Paris Agreement and decarbonize the economy, then other companies learning from these leaders and engaging their suppliers is going to be vital". The Supplier Engagement Leaderboard is available on CDP's website. It follows on from CDP's most recent supply chain report, Changing the Chain, which showed the vast potential for driving climate action at scale in the supply chain. The report found that

major companies working with CDP have potential to cut a gigaton of emissions by driving their suppliers to increase their average proportion of renewable power by 20 percentage points. The full list of 159 companies to achieve a place on the CDP Supplier Engagement Leaderboard is available at: https://www.cdp.net/en/research/global-reports/changing-the-chain?#supplier-engagement

Tech Mahindra has effectively integrated climate change in its Enterprise Risk Management Framework. This helped identify fuel and energy tax risk which were addressed by using low emissions

energy solutions and adopting clean/green technologies. Since April 2015, Tech Mahindra has achieved nearly US$2.3 million cost savings by deploying solar power, and leveraged cost savings worth nearly a quarter of a million dollars by installing energy efficient equipment. Tech Mahindra has also saved 23.7 million units of grid electricity in 2018-19. In addition, their Business Continuity Planning (BCP) exercise continually monitors risk assessment and mitigation measures, which cover their key functions, projects and systems.

Telangana Government and Tech Mahindra Collaborate to Launch 'Block-chain District Accelerator Program'

Tech Mahindra, a leading provider of digital transformation, IT and business re-engineering services and solutions announced today the launch of the T- Block Accelerator, the inaugural accelerator program for the Telangana Blockchain District in partnership with Government of Telangana and IBC Media, an innovation management company. The launch event was organized at Tech Mahindra Infocity Campus in Hyderabad and was well represented by government dignitaries, blockchain startups, educational institutes and members from the developer community. The event was graced by several dignitaries from the government including Hon'ble Shri Jayesh Ranjan (Principal Secretary of Industries & Commerce and IT Dept, Telangana Government), Hon'ble Smt Rama Devi (Officer on Special Duty (OSD), ITE&C Department, Government of Telangana) and other leading senior corporate executives from the industry. The launch of T-Block is a step in continuation of Telangana Government's endeavor to make Telangana as the 'Blockchain Capital of the World'. A Memorandum of Understanding (MoU) had been signed between the Government of Telangana and Tech Mahindra to this effect in 2018. This initiative is aimed at startups that have a strong blockchain use-case; thereby accelerating the start-up growth and therein contributing to the growth

of the overall industry. Jayesh Ranjan, Principal Secretary ITE&C Department, Government of Telangana, said, "The state of Telangana is committed to its vision of positioning Hyderabad as one of the leading Blockchain cities of the world. We are happy to set in motion the first edition of the T-Block Accelerator program. This accelerator will be a torch-bearer to multiple future blockchain accelerators in the country and we are excited to partner with Tech Mahindra to identify and promote innovative blockchain-based solutions to solve real-world problems." Through this initiative, Tech Mahindra, will enable creation of an ecosystem which will empower startups to solve tough business problems for clients across diverse industry verticals. The Telangana Government will help provide the required regulatory framework to enable and promote Blockchain growth. Rajesh Dhuddu, Global Practice Leader, Blockchain, Tech Mahindra, said, "As partof our TechMNxt charter, we at Tech Mahindra have been bullish in our efforts to expand blockchain adoption in India and globally. Our partnership with the state government for the Telangana Blockchain District stems from our desire to build a world-class support infrastructure for blockchain startups and make Hyderabad a destination of choice among several new-age entrepreneurs and blockchain evangelists. We look forward to successfully

running the T-Block Accelerator and building the public blockchain ecosystem in India." Raghu Mohan, CEO, IBC Media, mentioned, "We are very excited to partner with Tech Mahindra and run the T-Block Accelerator program for the Telangana Blockchain District. As a company driven by the potential of emerging technologies, sustainable growth and the entrepreneurial spirit, we, at IBC Media, strongly resonate with the vision of the Telangana government to foster innovation in India and are excited for the possibilities. On behalf of the startup fraternity of India, I am proud that an Indian State Government has taken such a progressive step". The registrations for the T-Block Accelerator will be open from February 3, 2020 with a one-week boot camp, followed by a four-week-long intensive training programme. Participating startups will receive mentorship and guidance from leading experts in the startup and blockchain space. The programme includes workshops, presentations, discussions, and assignments designed to impart the practical knowledge required to build relevant blockchain products with real-world applications. If you have an interesting Blockchain Use case and want to join the T-Block accelerator Program, visit - http://blockchaindistrict.telangana.gov.in/tblock

Tech Mahindra and Ahlstrom-Munksjö Collaborate to Enable Digital Transformation with SAP's S/4HANA

Tech Mahindra Ltd. a leading provider of digital transformation, consulting and business reengineering services and solutions, announced today a collaboration with Ahlstrom-Munksjö to enable digital transformation with SAP's S/4HANA. The collaboration will deepen strategic partnership to provide a digital roadmap for Ahlstrom-Munksjö's global business. The collaboration aims at a company-wide, multi-year business platform renewal program to power the future success of the company. It is the key enabler in Ahlstrom-Munksjö's growth strategy implementation and it will be aligned with many of the ongoing development programs. This is one of the largest programs for SAP's S/4HANA based ERP globally for business support and transformation. Kristiina Lammila, CIO, Ahlstrom-Munksjö, said, "Tech Mahindra has been our partner in the major IT transformation that we have been carrying out in Ahlstrom-Munksjö during the past almost 6 years. They are supporting us on many levels, from enabling strategy implementation to aligning business process management and securing business. They are a partner with an attitude to rapidly solve problems and develop things together with us. We

have full confidence in them and are happy to further deepen our cooperation with our next major project of renewing our business platform." The collaboration will also shape a long term success through business transformation with an efficient, agile and advanced business platforms leveraging SAP's HANA technology worldwide. Rajesh Chandiramani, Senior Vice President, Tech Mahindra, said, "Tech Mahindra is proud to have been chosen as a strategic transformation partner for the Business platform renewal program. We have been a strategic technology partner of Ahlstrom-Munksjö for more than 5 years

now and this new engagement will further strengthen our partnership. We strongly believe this transformation will result in, enhanced customer focus, higher growth and long-term profitability for Ahlstrom-Munksjö." This collaboration aligns with Tech Mahindra's TechMNxt charter, focused on leveraging next-generation technologies like Cybersecurity, Artificial Intelligence, Blockchain, 5G, and Internet of Things, to disrupt and enable digital transformation, and to build cutting-edge technology solutions and services for customers globally.

Tech Mahindra Launches a Dedicated Google Cloud Center of Excellence to Drive Digital Transformation of Enterprises Globally

Tech Mahindra, a leading provider of digital transformation, consulting and business re-engineering services and solutions, has today announced the launch of a dedicated Google Cloud Center of Excellence (COE) to drive digital transformation of enterprises globally. Established in Hyderabad, the COE will provide enterprises with access to the technology and services they need to expedite their cloud migration, and deliver tailored solutions to help them move critical workloads like to Google Cloud, develop their Artificial Intelligence (AI) and data analytics solutions, , and improve workplace collaboration productivity. Vivek Gupta, Global Head Cloud Services, Tech Mahindra, said, "Tech Mahindra's deep industry expertise and proven solutions

that focus on seamless modernization of infrastructure, applications and data to the cloud, combined with the power of Google Cloud will help accelerate the Cloud journey for enterprises as they move towards a digital-first future. As part of our TechMNXt charter, Tech Mahindra is focused on leveraging next generation technologies to enable our customers to drive growth and enhance customer experience." Tech Mahindra's dedicated COE will offer its clients a full spectrum of Cloud services, which will include consulting, assessment, migration, optimization and support services for enterprises looking to optimize their workloads on Google Cloud. Ash Willis, Head of Channels & Alliances, Google Cloud in Asia Pacific

said, "We're excited that Tech Mahindra continues to invest in and grow its Google Cloud practice. Together we provide our customers with secure, scalable and agile cloud-based digital platforms to scale their business and ease their migration to the cloud." As part of the TechMNxt charter, Tech Mahindra has developed several solutions on next generation technologies such as AI, Machine Learning (ML), Analytics and Augmented Reality on Google Cloud. As a Google Cloud Partner, Tech Mahindra is well equipped with all the necessary expertise, tools, processes, and strategies to support every stage of the cloud adoption journey including migrating workloads and applications to Google Cloud.

Tech Mahindra and Virsec Collaborate to Deliver Advanced Cybersecurity Solutions to Customers Globally

Tech Mahindra Ltd., a specialist in digital transformation, consulting and business reengineering services today announced a collaboration with Virsec, a US based cybersecurity company delivering a radically new approach to protect against advanced targeted attacks. The organizations are working to provide first-of-its-kind cybersecurity solutions to protect applications from the inside at the memory level in real-time. Virsec and Tech Mahindra will be showcasing these joint solutions at the RSA Security Conference 2020, February 24-27, in San Francisco. Rajiv Singh, Global Head of Cybersecurity, Tech Mahindra, said, "Cybersecurity is a top concern for our customers and the entire industry today. Tech Mahindra's collaboration with Virsec is a step towards defending against zero-day attacks launched by adversaries using fileless and memory-based techniques. We are already in the process of deploying this first-of-its-kind joint offering to a global major customer in North America to address cybersecurity concerns. As part of our TechMNxt charter, Tech Mahindra continues to deliver innovative and cutting-edge technologies in cybersecurity and risk management to customers globally." The Virsec Security Platform stops fileless and in-memory advanced application threats that escape detection by conventional security tools.

It also protects applications from the inside, against known and unknown zero-day threats. Virsec patented technology maps acceptable application execution, and instantly detects code execution deviations triggered by cyberattacks. This deterministic process detects and blocks application attacks within milliseconds, with precise forensics at every step.

Saurabh Sharma, Vice President of Business Development, Virsec, said, "In today's hostile security environment, we're seeing an exponential rise in attacks that target application memory during runtime, and Virsec directly addresses these risks. We are already working with Tech Mahindra's customers in the US representing telecom, semiconductor, and energy verticals and have plans

to expand our joint solutions to other verticals and regions." Tech Mahindra provides enterprise cybersecurity and risk management services to customers across the globe, including Fortune 20 companies. Virsec's patented technology has been validated with a range of Tech Mahindra's solutions providing unprecedented protection against advanced targeted attacks. This collaboration aligns with Tech Mahindra's TechMNxt charter, focused on leveraging next-generation technologies like Cybersecurity, Artificial Intelligence, Blockchain, 5G, and Internet of Things, to disrupt and enable digital transformation, and to build cutting-edge technology solutions and services for customers globally.

Tech Mahindra And Virsec Collaborate To Deliver Advanced Cybersecurity Solutions

Honeywell and Tech Mahindra Announce Expanded Collaboration to Build Digitized "Factories of the Future"

Honeywell and Tech Mahindra have teamed up to build "Factories of the Future", leveraging industry-leading digital technologies. The two companies plan to capitalize on digital transformation, 5G, Industry 4.0, software capabilities and engineering expertise to enable customers in the manufacturing industry to scale-up even faster. "Tech Mahindra and Honeywell have enjoyed many years of successful collaboration, and this proposal is the next step as we continue pressing toward an autonomous manufacturing future for our customers,"

said Sunil Pandita, vice president and general manager, Honeywell Connected Industrial. "Together, we will accelerate solution adoption in the market, creating smarter, safer and more sustainable industries." Honeywell and Tech Mahindra will aim to deliver world-class operations and performance management to enable manufacturing customers to expedite their growth and realize the value of Industry 4.0 technologies and solutions. Both Tech Mahindra and Honeywell are focused on building an ecosystem that supports collaboration. "Tech Mahindra's

collaboration with Honeywell will enable us to empower manufacturers to accelerate their digital transformation journey and build factories of the future," said Nilesh Auti, global head, Manufacturing Industry unit, Tech Mahindra. "As part of our TechMNxt charter, we are focused on leveraging next generation technologies to address our customers' evolving and dynamic needs. Honeywell's domain knowledge, combined with Tech Mahindra's technology expertise and global customer base, will enable our customers to increase their profitability and enhance efficiency."

Yahsat Wins Best Company Award from Tawteen

Al Yah Satellite Communications Company (Yahsat) has announced that it has won the prestigious Emiratisation Award from the UAE Ministry of Human Resources and Emiratisation (Tawteen) in three categories. Yahsat was conferred the coveted prize for Best Company of the Year in the Establishments category, while two of its talented employees collected awards for Best New Emirati Employee and Best Emirati in a Supervisor Role. Field Operations Engineer, Abdullah Essa Ahmed Sharif, won the Best New Emirati Employee award, which recognizes talented Emiratis who have taken up employment shortly after graduation. Yahsat's newly appointed Deputy Chief Technical Officer (CTO), Adnan Al Muhairi, was selected as the Best Emirati in a Supervisor Role. This award honors brilliant Emirati managers and section heads who are active in the private sector. All winners received their awards from His Highness Sheikh Mohammed bin Rashid Al Maktoum, the UAE Vice President and Prime Minister, and the ruler of Dubai. Congratulating the winners, Yahsat's Chairman and Chief Executive Officer of Mubadala Aerospace, Renewables & ICT, Khalid Al Qubaisi said, "We are very proud of Abdullah and Adnan – this is an important recognition of their individual

achievements as well as a testament to Yahsat's ongoing commitment to nurturing and developing National talent. Being recognized as Best Company of the Year is a true honor. As a homegrown Emirati company, at Yahsat we take it as our national duty to build and develop the unlimited and untapped potential of our young and future leaders and provide

them with the right tools and opportunities to excel." The annual honor is bestowed on exceptional Emiratis and Emirati companies across a number of categories. The Emiratisation Award acknowledges the achievements of private sector companies that champion Emiratisation in support of UAE Vision 2021. The categories include Establishments,

Best Emiratisation Supporting Entity, Emiratisation Pioneer, Best New Emirati Employee and Best Emirati in a Supervisor Role. "My best wishes to the two individual winners, and to Yahsat on this memorable achievement," said Yahsat's Chief Executive Officer, Masood M. Sharif Mahmood. He further emphasized the significance of the company's successful Emiratisation program: "As Emiratis set multiple milestones in the global space industry, we are very happy to note Yahsat's contributions to the growth of indigenous talent. The company provides an excellent platform to Emirati students looking to build a career in the space and satellite sector. We support them in their chosen fields through rigorous training and career development programs. At every level, Yahsat facilitates higher education, research and unique on the job training. As a result, we have become the employer of choice for Emirati space and satellite engineers." Yahsat won the award for the Best Company of the Year that

recognizes Emirati companies on multiple fronts, including their work in innovation and community development, employment and talent development, leadership and strategy as well as engagement and work environment. Yahsat's Chief Human Capital Officer, Muna Al Muhairi said, "We are honored and humbled by the recognition. I warmly congratulate our winners and the entire Yahsat family that have made these awards possible through their commitment and hard work. We are inspired by our youth, and we aim to make Yahsat a place where our children dream of working and a company that our young generations are proud of." The Best New Emirati Employee award winner, Abdullah Essa Ahmed Sharif graduated as a Mechanical Engineer from the American University of Sharjah, with a Minor in Engineering Management. In 2018, he obtained an MSc in Engineering Systems and Management from Khalifa University, with a specialization in space systems and technology. Abdullah was part of the team that conceptualized and

built the UAE's first nano satellite with remote sensing capabilities – MYSAT-1 - at Yahsat Space Lab on Khalifa University premises. After the successful closure of the project, he wanted to have a broader understanding of the space industry, which led him to take up his current role at Yahsat as a Field Operations Engineer. With a distinguished record in the space industry, Adnan Al Muhairi has worked at Yahsat for 10 years. He was involved in the UAE's first successful remote sensing spacecraft program. Later, he worked on the UAE's first communication satellites, Al Yah 1 and Al Yah 2, before being appointed as the Program Director of the Al Yah 3 space communications system - a highly advanced space network that expanded Yahsat's services further into Africa and also into Brazil. As Deputy CTO of Yahsat, Adnan oversees the design and development of cutting-edge communication solutions for Yahsat's customers across the world.

Yahsat Joint Venture Boosts EchoStar Subscriber Count

Satellite broadband and hardware provider EchoStar added 20,000 HughesNet internet subscribers through its Brazilian joint venture with Yahsat, boosting subscriber numbers as EchoStar's satellite capacity becomes limited. Germantown, Maryland-based EchoStar had 1.477 million subscribers at the end of 2019, up 116,000 from the year prior partly due to capacity made available in November on Yahsat's Al Yah 3 satellite. During an earnings call Feb. 20, EchoStar executives said they continue to evaluate ways to add capacity while awaiting the launch of Jupiter-3, a half-terabit satellite Maxar Technologies

is building for a 2021 launch. After selling nine on-orbit broadcast satellites to Dish Network Corp. last year for $800 million, EchoStar is now focused almost exclusively on broadband. EchoStar's Hughes Network Services division generated $1.85 billion of the company's $1.89 billion in 2019 revenue. Hughes President Pradman Kaul said the company's satellites covering North America have "relatively full beams," limiting the capacity available for new subscribers. Hughes is focused on adding higher paying subscribers in those beams while seeking to limit customer churn, Kaul said. In Latin America, Hughes' community

Wi-Fi service "Express Wi-Fi" has been deployed in 800 locations and is expanding rapidly in partnership with Facebook, Kaul said. Hughes provides services in seven countries across Central and South America, and counts 237,000 international subscribers, he said. Yahsat and Hughes are still combining their operations, a process Kaul said includes installing a Hughes Jupiter gateway pointed at Yahsat's Al Yah 3 satellite, migrating more Yahsat customers onto HughesNet, and integrating Yahsat's distribution network across Brazil.

Recognizing Cybersecurity as an Organizational Issue, Not an IT Play

AbdulGhaffar Setareh
Chief Risk Officer
Zain Group

> *Zain Group has been proactive in raising awareness of the importance of cyber resilience within the organization, while also being an active investor in cutting-edge technology and solutions geared at cyber securing its digital data.*

Cybersecurity, and more significantly cyber resilience, is a central issue in the digital age we currently exist in. Cyber resilience within organizations refers to their ability to take a hard look at their business practices and make significant investments in their resources, structures and policies to ensure that they are able to prevent, detect, respond, and quickly recover from attempts to compromise their digital systems.

The responsibility on telecom and other types of technology companies to maintain the integrity of their own as well as third-party digital assets is even more onerous. For its part, Zain Group has been proactive in raising awareness of the importance of cyber resilience within the organization, while also being an active investor in cutting-edge technology and solutions geared at cyber securing its digital data.

As digitization gains pace and the integration of systems becomes commonplace, it has become clear that cybersecurity is not just an IT issue, it is an organizational one. As such, it needs to be addressed strategically within the company rather than just tactically. Starting with senior management, organizations need to adopt a culture of raising awareness of the importance of cybersecurity and resilience, and then oversee its implementation across business functions and operations.

Zain's Group Risk Management is at the forefront of raising and implementing cybersecurity initiatives within the organization. For example, it has developed material for a year-long cybersecurity awareness program and shared it with all operating companies. The program, with a slogan of PAUSE, THINK, ACT, has developed into an on-going initiative throughout the year, and is updated regularly with the latest trends in cybersecurity risks.

In Kuwait and Bahrain, Zain is providing its corporate customers secured and protected environments by providing wide range of services, including a DDOS (Distributed Denial of Service), a cloud-based service that proactively monitors customer traffic behavior and patterns to provide a 24/7 remote detection, and risk mitigation against DDoS attacks.

Program content extends to topics such as malware/ransomware; two-factor authentication; password security; mobile/laptop security, and is disseminated throughout the organization via six distinct channels (e-newsletters, posters, rollups, SMS, banners, screensavers). Additionally, 'train the trainer' sessions are conducted for subject matter experts from Zain operating companies, while advanced cybersecurity content has been developed for technical staff.

Sharing information is fundamental to improving cybersecurity posture, and having successfully hosted the first Risk Synergy Forum in 2018, Zain's Group Risk Management organized the second edition of the event in Bahrain in October 2019. The two-day conference was inaugurated by Board Risk Committee Chairperson, Dr. Saud Al Nahari.

Risk management professionals from across Zain's operations shared their best practices across enterprise risk management, business continuity, and cybersecurity management. New trends

in cybersecurity and risk management were presented to ensure all operations are aligned, work to enhance synergistic opportunities, and establish a strategic direction for risk management.

There are many aspects to establishing a robust cybersecurity posture within an organization, and certification is a way of ensuring internal processes and technologies are up to standard, while also giving a level of confidence to third-party stakeholders that the organization takes this aspect of its business seriously.

Given the growing importance of the government and enterprise (B2B) segments to Zain, it comes as no surprise that the telecom operator has invested significantly in tailoring solutions for customers in this area, where the protection of digital assets is arguably at its most critical.

Pursuing its desire to adhere to industry best practices, operations across Zain's footprint continue to maintain their ISO 27001 Information Security Management System Certifications. In 2019, Zain Kuwait went as far as achieving the ISO 22301 Business Continuity Management System Certification and was first telco in Kuwait and third in the region to receive M&O Data Center Certification from Uptime Institute recognizing the high international standards in its data center.

Zain Jordan has developed a state-of-the-art facility with a highly modernized communications network and solid UT infrastructure that qualifies as a TIER 3 Disaster-Recovery Center.

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protected environments by providing wide range of services, including a DDOS (Distributed Denial of Service), a cloud-based service that proactively monitors customer traffic behavior and patterns to provide a 24/7 remote detection, and risk mitigation against DDoS attacks. Zain has multiple DDoS detection servers across the globe that detect and push necessary policies to redirect the attacking traffic to scrubber devices that clean the traffic and send it back to the customer.

Zain is helping the corporate customer in providing and building fully managed services to manage their SOCs by providing them risk assessment and penetration tests, as well as defining the process and policies for their SOCs, including the tools and resources.

Zain Jordan has developed a state-of-the-art facility with a highly modernized communications network and solid UT infrastructure that qualifies as a TIER 3 Disaster-Recovery Center. Coined 'The Bunker', the facility is situated at the King Hussein Business Park in Amman, and is a certified data center that gives local, regional and international organizations the opportunity to host their IT infrastructure and DR offices, while also offering clients a secure environment to enhance their ICT business processes.

In the Kingdom of Saudi Arabia, Zain has partnered with Samsung to launch a cloud-based Enterprise Mobile Management (EMM) solution to manage a fleet of devices, increasing business efficiency and securing corporate data. The solution can manage any Android, iOS or Windows 10 device, but is most secure on Samsung Galaxy devices integrated with the Knox platform.

In conclusion, all cybersecurity conscious corporations need to ensure their employees PAUSE, THINK, ACT.

Unleash the Extraordinary Potential of Data

Dull Data or Dynamic Opportunities

Huawei   Leading Data Infrastructure

OceanStor | GaussDB | FusionInsight

Kun Peng

Building a Fully Connected,
Intelligent World

<div style="background:#1a9ba0;color:#fff;text-align:center;font-weight:bold;">REGIONAL NEWS</div>

TRA Represents UAE at 1st International Information Security Forum in Riyadh

The UAE, represented by the Telecommunications Regulatory Authority, TRA, concluded its participation in the first International Information Security Forum, which started in the Saudi capital, Riyadh, under the generous patronage of the Custodian of the Two Holy Mosques, King Salman bin Abdulaziz. The forum was aimed at exploring and finding new horizons for international cooperation in Cybersecurity, through which international initiatives are formulated. It also allowed for the exchange of expertise and experience among countries in this extremely important domain, with the participation of a select group of senior officials in government and private sectors within and outside the Kingdom, in addition to a number of prominent academics, decision-makers, investors and leaders of various international organizations. Hamid Obaid Al Mansouri, TRA Director-General, delivered an opening speech on the first day of the forum. He said, "The importance of this forum is evident from the fact that it comes at a defining moment, as the world is witnessing rapid transformations and developments in all areas, powered by ICT. A key transformation is the mass exodus to the virtual world, where the number of Internet users exceeds four billion, and almost the same number accesses social networking websites, while the number of smartphone users is approaching three billion. All that means a massive influx of data in every aspect, most of which was, until recently, private property that was prohibited from being accessed under the prevailing laws and customs." He added, "The unprecedented nature of cyber risks puts us, as governments and organizations, in the face of necessary choices. The most important weapon in our hands to confront cyber risks is cooperation at all levels, regionally and globally, while ensuring

rapid response and information flow. We in the UAE, and based on the future vision of our rational leadership, believe that a full-fledged smart city is just a stone's throw away. I can proudly confirm that we have accomplished a lot of our preparations for that phase, both in terms of plans and strategies adopted by our government in areas of AI, intelligent transportation systems, 3D printing, advanced technology etc., or in terms of current applications." More than 1,200 experts, representing 63 countries and major global Cybersecurity companies participated in the two-day forum, during which 50 sessions were held across five key areas, including Cybersecurity, international cooperation, cyber communities, modern technologies, cyber threats and to confront them.

Total Assets of UAE Telecom Operators Up to US$39.5 Billion in 2019

The total assets of Emirates Telecommunications Corporation, Etisalat, and the Emirates Integrated Telecommunications Company, du, increased to AED145.12 billion in 2019, a YoY growth of around 2.8 percent from AED141.74 billion. The financial statements announced by the two listed companies show their total combined revenues hit AED64.8 billion in 2019, while

the royalty fee they paid to the government stood at circa AED7.85 billion. The net profit secured by Etisalat and du in 2019 grew to around AED10.43 billion from AED10.36 billion in 2018, according to the two companies' official figures. In more detail, the profits of Etislat edged up to AED8.7 billion in 2019 from AED8.61 billion in 2018. Etisalat's assets amounted to AED128.266 billion in 2019, compared

to AED125.243 billion in 2018, with the revenue hitting AED52.2 billion by the end of 2019. On the other hand, du's 2019 net profit slightly declined to AED1.736 billion from AED1.752 billion in 2018. The total revenue of du reached almost AED12.6 billion last year, with the company's total assets having increased from AED16.5 billion 2018 to AED16.85 billion in 2019.

Middle East and Africa Firms to Spend US$30 Billion on Digital Transformation this Year

Organizations in the Middle East and Africa are expected to spend $30 billion (Dh110.1bn) on digital transformation this year, driven largely by industries such as banking and energy. "Total IT [information technology] spend in the MEA will be $90bn in 2020 and one-third of this will directly go towards digital transformation initiatives," Jyoti Lalchandani, group Vice President and Managing Director for MEA and Turkey at International Data Corporation, told The National. The Massachusetts-based research company is expecting significant growth in technology investment in the coming years and projected that spending will grow at a compound annual rate of 18 per cent in the region over the next four years. With more number of industries, such as banking and energy, leveraging new technologies to transform their operations, "there would be a significant rise in digital transformation spending" said Mr. Lalchandani. The banking and finance industry will spend $13.23bn on technology this year but IDC forecasts this figure will reach $15.4bn by 2023, growing at a compound rate of 4.7 per cent. Resource industries - including oil and gas mining - will spend $5.33bn on technology this year. This is predicted to grow to $5.79bn over the next three years. Dubai Internet City, one of the investment zones in the emirates, foresees lack of good talent as a hindrance in the ongoing digital transformation drive. "Our government is pushing digital transformation in a big way and positive results are before everyone… Dubai Internet City is also playing a crucial role in attracting new talent and technologies," said Ammar Al Malik, Managing Director of DIC.

"But we still need to do more and the industry is facing a talent shortage," said Mr. Malik. Currently, more than 25,000 people are working at DIC and the authorities expect this number to reach 40,000 in the next six to seven years. Korn Ferry, a Los Angeles-based management consulting firm, predicted that there will be a global tech talent shortage of more than 85 million people, which is roughly equivalent to the population of Germany, over the next ten years. This could result in $8.5tn in unrealized revenues, it added. A talent shortage will impact the region in two ways, said Mr. Lalchandani. "It will slow down the investment and force the companies to automate more. I won't say that with automation there will be job cuts … rather, it will lead to job rationalization as new kinds of jobs will be created and companies will be required to up skill their current staff," he said. Technology firms agree there is a skills gap in the region that is pushing back the speed of digitization. "Our regional customers face a lot of skill shortage … especially in the fields of performance-oriented jobs that involve quick trouble-shooting, analysing huge data and predicting future trends," Charbel Khneisser, Europe, Middle East and Africa director at Riverbed Technology, said. "This is slowing the pace of digital transformation efforts," he added. California-Headquartered Riverbed has more than 1,000 clients in the Middle East, with Saudi Arabia and the UAE – the Gulf's largest economies – its biggest markets. "To minimize the impact of talent shortage on the companies' bottom line, we provide them monitoring tools or software to perform various tasks," added Mr. Khneisser.

Inmarsat Launches Services in Saudi Arabia

Inmarsat has announced that it will bring its maritime, aviation and enterprise connectivity solutions to customers based in Saudi Arabia through new partner agreements. The company additionally announced that it has secured new spectrum licenses to deliver both its narrow-band (L-band) and high-capacity broadband (Ka-band), Global Xpress (GX), services in Saudi Arabia, enabling Saudi-based businesses to deploy these services for the first time. Fixed and mobile satellite telecommunications distributor Sada Al Ammah and Global Beam Telecom have been appointed as Inmarsat's first distribution partners in Saudi Arabia and the region and they will work closely with Inmarsat's Maritime, Aviation and Enterprise businesses to roll-out services in the region. Inmarsat's Maritime business will partner with Sada Al Ammah to distribute connectivity services for

merchant and offshore vessels operating in Saudi waters, providing full access to Inmarsat's Fleet Xpress services. It

has also signed a separate installation agreement with service company Master Systems.

Competing Telecom Operators Integrate Mobile Financial Platforms

Jazz and Telenor, two of the biggest mobile telecommunication service providers in Pakistan, have joined hands with each other's microfinance banks to facilitate their respective customers. As per details, Jazz has partnered with Telenor Microfinance Bank while Telenor Pakistan has partnered with JazzCash keeping in view recent developments in the digital ecosystem and to ensure the provision of services for more fluid customer experiences. According to a joint press release issued in this regard, "The partnership's aim is to enable a digital ecosystem for consumers to enhance their ability to manage financial and mobile communications needs by providing reliable, border-less services." Following this direct integration among the entities, the Easypaisa App could be used to purchase Jazz airtime while JazzCash mobile application could be used to purchase Telenor Pakistan's bundles. "Jazz bundles will also be available on the Easypaisa App in the future." This is

a first of its kind deal between the two players and is a welcome development, given that the digital world is moving forward at a rapid pace and there is a need to leverage digital channels to make it as easy as possible for customers to choose what service they should use. Jazz Chief Operating Officer Asif Aziz said, "Our priority is to promote consumer choice and improve access to high-quality digital financial services, particularly for underserved households. This partnership with Easypaisa is a vital step towards this mandate of ours. Collaborating with a competing mobile payments provider shows our willingness to build a border-less payments ecosystem, which shall help build a more open, interoperable payments system in the future." Speaking on the development, Telenor Pakistan Marketing Director Umair Mohsin said, "We always have customers at the core of our business and our priority is to bring convenience and feasibility to them at their fingertips.

Through this partnership with JazzCash, we are enhancing the user experience to be more inclusive of what our industry has to offer while providing a wider gateway towards financial inclusion. In this era of digitalization, we are reducing boundaries and enabling our customers through integrated touch points." Khurram Malik, Head of Easypaisa commented on the partnership, "Easypaisa is transforming the way users perform financial transactions. We aim to digitize user experience by building a digital ecosystem that allows them to enjoy convenient payment options. This partnership with Jazz is another step in that direction. We will continue to bring more brands and service providers under the Easypaisa umbrella to create diverse opportunities as well as provide ease to consumers". The deal between two competing mobile operators and financial services provides an insight into the benefits that technology offers. Such alliances and interoperability allow these two players to deliver on many of their promises, including enhanced efficiencies and better customer experience. As per PTA indicators, Jazz holds 36.55pc of telecommunication market share followed by Telenor Pakistan with 27.68pc. EasyPaisa was launched in partnership with Tameer Microfinance Bank Limited in 2009, while JazzCash came into formation in 2012 in partnership with Mobilink Microfinance Bank. As per a newsletter issued by the State Bank of Pakistan at the close of 2018, the two branchless banking services were competing head-to-head, with Mobilink at approximately 47pc and Telenor at 41pc share of active accounts.

Inwi Withdraws Lawsuit against Maroc Telecom

Moroccan telecoms company Inwi has revealed that it has dropped a lawsuit against the country's market leader Maroc Telecom (IAM). The decision was instigated by Inwi's majority owner Societe Nationale d'Investissement (SNI), a Moroccan investment fund with assets of at least USD2 billion, which is controlled by the royal family. The case for non-compliance with regulatory

provisions related to fair competition was brought in March 2018 at a commercial court in Rabat, with Inwi demanding more than MAD5.7 billion (USD580 million) in damages. Last month, Morocco's National Agency of Telecommunications Regulation (Agence Nationale de Reglementation de Telecom, ANRT) fined Maroc Telecom MAD3.3 billion for abusing its dominant position in the market by preventing and

delaying competitors' access to local loop unbundling (LLU) on its network. Inwi said in its press release that ANRT's decision will 'restore fair competition in the telecommunications market, benefiting consumers and companies, as well as strict compliance with the laws and regulations in this field.'

Bangladesh Mobile Phone Market Sees 4% Growth in 2019

Bangladesh's mobile phone market returned to growth in 2019 with a 4.1 percent annual growth, shipping 29.6 million units during the year, said a new report released from New Delhi. Feature phones continued to dominate with 76.6 percent share and 22.7 million units shipment with a 4.9 percent annual growth, according to the International Data Corporation's (IDC) Worldwide Quarterly Mobile Phone Tracker, 4Q19. In the smartphone category, a total of 6.9 million smartphones were shipped in 2019 with a 1.4 percent year-over-year (YoY) growth. The last quarter of the year (4Q19) saw the healthy growth in the overall mobile phone shipments as the category grew 19.5 percent YoY and 16.2 percent from the previous quarter, contributing 8.8 million shipments to the year. In June 2019, the government of Bangladesh increased the customs duty on the import of completely built units (CBU) of the smartphone to 25 percent from 10 percent earlier, resulting in a 4.1 percent decline YoY in 2H19. However, as feature phones were left outside of this increased duty structure, it saw a strong recovery with 20.1percent YoY growth in 2H19.

The China-based vendors continued to launch higher-priced smartphone models with better specifications. This helped the average selling price (ASP) of smartphones to reach $99 with a 5.7 percent YoY growth in 2019. The share of 4G-enabled smartphones reached 69 percent with 50.4 percent annual growth in 2019. However, 3G smartphones still hold 31 percent category share, primarily because these smartphones were selling at less than half of the price of a 4G smartphone. Also, due to limited coverage and poor quality of the 4G network, users are still reluctant to upgrade. "Despite modest growth, the country saw a shift in local manufacturing as three out of four smartphones shipped in 4Q19 were locally assembled from just one-fourth smartphones assembled in 1Q19," says Ekta Mittal, Market Analyst, Client Devices, IDC India. "Walton was the leading vendor in local production as it assembles all its devices in the country. Among the global vendors, Samsung assembles almost all of its smartphones in the country but still depends on import of feature phones. Also, OPPO and vivo had started their local production from 2H19

and a few more vendors are expected to set up their local production in the coming months," said Mittal. Commenting on the recent growth of local assembly, Jaipal Singh, Associate Research Manager, Client Devices, IDC India said as the local governments continue to discourage the CBU (Completely Built Units) import across countries, it is putting immense pressure on global vendors to diversify their production plants in key geographies to meet the local demand. Singh said this provides an opportunity to reduce the dependency on China. "At the same time, it also brings a lot of challenges, starting from managing the overall cost, inventory, and production, especially when the domestic demand is limited, and manufacturing is largely restricted to assembling of devices locally and all the components still have to be imported." "As vendors settle their production challenges, we expect a gradual shift to smartphones in the coming years. However, the 4G network coverage and data pricing will play a critical role in this transition," Singh said.

Libya Internet Prices Reduced by 50 Percent

Libya's General Authority for Communications and Informatics announced a 50 percent reduction in the prices of subscriptions and internet packages provided by state telecommunications companies. The Authority said that the decision came after a series of meetings and discussions with specialists to ensure that the reduction does not cause any negative effects on the budgets of the companies concerned. It explained that the decision to slash prices comes as part of the Authority's efforts to improve the level of communication and information services, to enable citizens to access internet services in the easiest way and lowest prices, to promote the culture of digital knowledge and to keep pace with

the technological development of all age groups in Libya. The huge price cut has come as a surprise to many experts in the field. Well placed telecoms sources in Libya told Libya Herald that the price reduction was too high. It presumes that Libyan telecoms companies are earning more than the 50 percent reduction in profits – which they insist they are not. The sources put profits at no more than 30 percent and, therefore, they see the price cut as a new type of subsidy. This, they add, at the very time when the Libyan state is struggling economically and attempting to reduce inherited Qaddafi-era subsidies. They predicted that the main state company supplying internet services would go bust soon if the cut was implemented.

They doubted that the 50 percent would be implemented at a time when Libya's telecoms companies needed to implement huge investments to upgrade the internet service and quality in the country. They see the decision as a political one taken unilaterally without even consulting Libya's internationally recognized government. It will be recalled that the internet service in Libya has come in for huge criticism with its poor quality and lack of reliability. The crash in the value of the Libyan dinar and in standards of living had made it relatively more expensive. Libya's ever-present power cuts since its 2011 revolution has not helped reliability either.

TRA UAE Holds the "Innovation Science Day"

Coinciding with the UAE Innovation Month, The Telecommunications Regulatory Authority (TRA) organized the Innovation Scientific Day in its Dubai office, and invited government entities and university students. The event was held in the presence of H.E. Majed Al Mesmar, TRA Deputy Director General for the Telecommunication Sector, and with the participation of a number of TRA strategic partners from the private sector. TRA Innovation Day witnessed a number of activities that highlight the importance of innovation today, and its role in achieving the country's goals in various sectors such as education, health, transportation, and others. In his opening speech, H.E. Al Mesmar welcomed the attending guests and thanked them for participating in the Innovation Science Day. He said: "The importance of this forum lies in the diversity of visions, experiences and perspectives. You represent different experiences that collectively provide a clearer and more solid picture of how to transform innovation into practice, culture and lifestyle. In this rapid time, as developments accelerate, innovation is not only a need for growth, but also a necessity to survive. Today we can say with confidence that survival is for innovative thinkers. This is a fact supported by figures and facts. According to a study issued by McKinsey Global Institute in this regard,

80 per cent of executives believe that their business would fall behind if it continues in the same pace, while 84 per cent said that enduring requires the development of innovation and regeneration strategies." H.E. Al Mesmar highlighted that we live in an unprecedentedly changing world, in which we need intuition and vigilance, critical and analytical thinking, and focus on efficiency, effectiveness and results. He added: "We need the youth, their creative energy and their ability to communicate, using the tools provided by the Internet and communication channels. We need to share, interact and instill team spirit in all sides and at all levels as in our meeting today. We need to make positive competition a part of our daily practices, whether in the classroom, in the workplace, or in life. We also need to keep abreast of all updates in this world that is changing at a tremendous speed. Today, slowing down is not an option as one step of reluctance means one step behind." H.E Al Mesmar emphasized the importance of innovation to achieve leadership. He said: "Our wise leadership has chosen innovation as a way of life. Our government has worked to make innovation a daily practice, at home, school and work, to ensure the UAE's leading position among the developed countries. The wise leadership decision to hold the UAE Innovation Month in February is an affirmation of the leadership

approach to achieve the UAE goals in the era of the Fourth Industrial Revolution. In the UAE, we innovate to make our people and all the peoples of the world happy." The Innovation Scientific Day agenda included a number of activities where the participants learned about the importance of 5G in the world of innovation, and its great potentials in various fields, as the great speeds provided by the new generation help to create new solutions to various challenges. Huawei gave a presentation on the role of innovation in the world of digital applications. Dr. Slim Saïdi from Rochester University of Technology spoke about the Internet of Things and its link to innovation. During the event, Dr. Nawaf I. Almoosa from the Emirates ICT Innovation Center (EBTIC) presented success stories and lessons learned in innovation, and Professor Prof. Nihel Chabrak spoke about the role of the UAE University Science & Innovation Park in supporting innovation and creativity. The UAE ranked first in the Arab region in Global Innovation Index 2019. Innovation is a main component of the national pillars of the UAE Vision 2021 under "United in Knowledge", which seeks to achieve a diversified and flexible knowledge economy led by skilled Emirati competencies and strengthened by the best experiences to ensure the long-term prosperity of the UAE and its people.

Digital Transformation Drives Public Cloud Spending in the Middle East and North Africa

The movement of large organizations and small and medium enterprises to transform their businesses digitally is driving public spending in the cloud in the Middle East and North Africa (Mena). Sid Nag, vice president of research at Gartner, said government initiatives such as Smart Dubai, Smart Abu Dhabi, the 2019 Bahrain Cloud First Policy have fueled cloud adoption among large organizations in the region. Organizations are also increasingly moving their applications and workloads to the public cloud as security and governance concerns dissipate even more, as many global technology companies have opened data centers in the region for regulations on data residence Large technology companies have shown interest in the UAE to open data centers. Amazon Web Services has a group of data centers in Bahrain and the UAE. Oracle has already opened its first data center in the United Arab Emirates last year in Abu Dhabi and plans to open one more in Dubai this year, and two in Saudi Arabia this year, one had already opened in Jeddah, while Microsoft opened its centers of data in Dubai and Abu Dhabi last year. Alibaba Cloud, the cloud computing arm of Chinese e-commerce giant Alibaba Group, has already invested in a data center in the UAE, while SAP opened its data centers in the UAE and Saudi Arabia last year. IBM opened two data centers, one in Dubai and Abu Dhabi, this year. Large cloud providers need to have local data centers to serve governments, financial and banking sectors for data residence regulations. Necip Ozyucel, Leader of the Cloud and Enterprise Group at Microsoft UAE, said that cloud adoption was strong in the UAE but that the challenge was the financial and government industries due to data redundancy and latency was also another challenge for others. Industries too. After the opening of data centers in the UAE, he said there is a strong adoption of cloud services in all industries and that it has also unlocked all government problems. "Governments and financial sectors are moving mission-critical applications to the cloud and many customers in retail, construction, airlines and small and

medium-sized businesses are migrating," he said. Arun Khehar, senior vice president for Central and Eastern Europe, the Middle East, Africa and India at Oracle, said the data center is a great catalyst for local customers to move to the cloud, as they can expand beyond their geographies and it can only be done through the internet and the cloud. "The government sector is not a problem, since we sold them three years ago. The problem is with the sensitive part of the government, such as the finance department. This happened due to the Abu Dhabi data center. Data sovereignty is a key issue. Human resources and payroll are crucial and sensitive in this part of the world, "he said. Security and privacy issues have been fixed due to the local data center, he said and added that the cost of running a cloud is cheaper since there is no infrastructure cost, no skills are needed, since Oracle has the skills and updates.

Growth engines: CRM and ERP

Khehar said that business problems have become critical and that digital transformation has become a much bigger problem than where the data will reside. Nag said the region's collective economic goal to focus more on technology and data has been the cornerstone of this rapid acceptance of the public and private cloud. The regional market is expected to increase 21% year-on-year to $ 3b this year compared to $ 2.5b a year ago and this figure is expected to increase to $ 3.6b in 2021. Nag said SMEs in the region are focusing their investments on cloud

implementations that will allow faster business analysis and artificial intelligence, which are key growth engines for the public cloud in the region. In the public space in the cloud, software as a service (SaaS) is expected to represent 53% of total revenue from the service in the public cloud at $ 1.6b this year compared to $ 1.3b a year ago. "SaaS products are generally sold by subscription, allowing companies to avoid large upfront license fees and capital costs. The profitability of SaaS is one of the motivations for organizations to increase their expenses in the segment," said Nag. Customer relationship management (CRM) and enterprise resource planning (ERP) remain the two main segments that drive SaaS growth and will continue to increase as companies continue to improve their customer experience. Nag said ERP will represent 12% of the overall revenue forecast for public cloud services this year and this is because most independent software providers have converted their ERP applications from local offers based on licenses to SaaS offers based on Cloud. While business intelligence (BI) applications are currently low in the region, he said it is the fastest growing segment among SaaS offers and is on track to total $ 29 million in 2020, an increase of 37% since 2019. "BI revenues are expected to reach 30% growth over the next three years as local businesses take advantage of BI-based analysis to make smarter decisions and optimize their business operations," he said.

Bahrain Airport First in Mideast to Operate with eLTE Technology

The new passenger terminal building of Bahrain International Airport (BIA) will become first in the Middle East to operate with Enterprise LTE (eLTE) technology as its mission-critical system, Bahrain Airport Company (BAC) announced. The move follows of a key technical agreement between BAC and Batelco, signed by BAC Chief Executive Officer, Mohamed Yousif

Al Binfalah and Batelco Enterprise General Manager, Abderrahmane Mounir, in the presence of the Minister of Transportation & Telecommunications and BAC Chairman, Kamal bin Ahmed Mohammed and Batelco Chairman Shaikh Abdulla bin Khalifa Al Khalifa. Commenting, Al Binfalah said the deal puts BAC another step closer to realizing the Kingdom's digital

transformation goals and "our objective of providing our partners at the airport with modern and reliable mission-critical communication solutions." The new eLTE system will improve BIA's emergency management services and operations at the new terminal, and the airport at large, while affording several benefits such as last-mile data connectivity, fast emergency CCTV deployment, HD voice and video dispatching capabilities over smart handheld devices. Wi-Fi services for all Batelco will also provide highspeed connectivity for Voice, Data, and Wi-Fi services for all airport tenants and passengers. Batelco Enterprise General Manager, Abderrahmane Mounir expressed his delight in associating with Bahrain Airport Company. "We're committed to being a key stakeholder in elevating the services at Bahrain International Airport," he added. BAC emphasized that the strategic investments will help transform it into a world-class boutique airport and increase the aviation sector's contribution to the national economy in line with the Kingdom's Economic Vision 2030.

Pakistan Needs a Comprehensive Road Map for Development of IT Sector

Prime Minister Imran Khan directed formulating a comprehensive road-map for development of information technology (IT) sector in the country within a week. The key areas include launch of 5G spectrum, connecting mobile phone towers through fabrication in big cities and defining time-lines of other important matters to remove impediments in Development of IT sector. The prime minister issued the directive while chairing a meeting on promotion of information technology, attended by Commerce Adviser, PM's Special Assistant, Co-chairman Prime Minister Task Force for IT and Telecom Dr Ata ur Rehman, and Secretaries of information technology, commerce, cabinet and finance divisions. Development of IT

Sector to Include Launch of 5G Spectrum Prime Minister said the country's future was linked with the information technology and the government was giving priority to promotion of the sector by providing incentives to the skilled youth. He said the country's youth had immense talent and expertise in the IT and the promotion of that sector would create millions of jobs for them. Secretary Information Technology Shoaib Siddiqi briefed the prime minister about giving incentives to the skilled professional youth and freelancers, increasing exports of the IT sector and tax incentives, easy loans to the youth, facilitation of foreign remittance process for freelancers and visa-related matters. He said a comprehensive plan had been

chalked out for the promotion of IT sector, for which relevant departments had been assigned duties. A representative of the State Bank of Pakistan said for freelancers, the process on implementing decision on increasing monthly limit of foreign remittance to $25,000 would be completed in two days. It had been ensured that freelancers be given maximum incentives on the received amount and also the exchange of foreign currency into local currency be made at inter-bank rate, he said. The meeting was told that e-payment gateway would be established by April. A representative of the Federal Bureau of Revenue gave a briefing on tax incentives to the IT sector.

5G Related Activity Gains Momentum in the Middle East

5G activity continues apace in the Middle East, with a new smart campus initiative announced in Saudi Arabia and a 26GHz 5G launch planned for the UAE – potentially this year. Saudi Arabian telecommunications company STC, which offers both fixed and mobile communications services, has announced the successful deployment of what it calls the first 5G smart campus in the MENA region. The 5G Smart Campus Network, as it's known, is described as the entry point for stc's ongoing effort to offer vertical industries in the kingdom 5G-powered services. With the high throughput and very low latency that 5G offers, the smart campus will, says STC, facilitate the introduction of intelligent applications and advanced use cases such as 5G CCTV, cloud PC, cloud gaming, cloud VR, 5G live broadcasting, AR, remote assistance and drone inspection in 5G. Among industries

that could benefit from the new smart campus, stc cited oil rigs, gas exploration, education, medical treatment, mining and other industries with diversified and remote infrastructure. This initiative is part of stc's plans to incubate new 5G use cases, particularly focusing on the enterprise market. stc partnered with Huawei for this project. Another 5G first may soon be on the way, this time from the UAE, whose

Telecommunications Regulatory Authority (TRA) expects the country to be the first market in the Middle East to begin using higher-frequency mmWave spectrum for 5G services (5G services using 3.5GHz frequencies are already available). News reports quote a TRA representative as suggesting that 26GHz will be allocated this year, mainly for Dubai Expo 2020, which begins in October.

Saudi ICT Spending Forecasted to Rise 2.4% in 2020

Overall spending on information and communication technology (ICT) in Saudi Arabia is set to reach $37 billion this year, up 2.4% on 2019. That's according to the latest predictions revealed by International Data Corporation (IDC) as it hosted the Kingdom's most influential ICT industry figures at The Ritz-Carlton in Riyadh for IDC Directions 2020. Delivering the event's keynote address, the firm's country manager for Saudi Arabia and Bahrain, Hamza Naqshbandi, announced that spending on IT services will reach $3.9 billion in 2020, while software spending will top $1.4 billion. He said that IT spending in the country (including mobile devices, storage, hardware, systems, and software) will grow 4.2% year on year. The government, finance, and communications sector will spend in excess of $3.8 billion on IT in 2020, accounting for almost 53% of total IT spending across all industries in the Kingdom. "The Saudi ICT market is grappling with a wave of new digital transformation realities," said Naqshbandi. "The growth we are seeing in ICT spending is primarily being driven

by an increased focus on giga projects and smart governance. These initiatives are spurring the adoption of artificial intelligence, robotics, the Internet of Things, cloud, blockchain, and a host of other emerging technologies as both the public and private sectors look to create synergies, cut costs, increase safety, and optimize processes across verticals in a whole new way." IDC Directions is Saudi Arabia's seminal ICT industry event and this year explored the theme of 'Multiplied Innovation Goes Mainstream: Thriving in the Digital Economy'. Bringing the Kingdom's foremost technology vendors, telecommunications operators, and IT service providers together under one roof, the event examined the evolving priorities of C-suite executives in Saudi Arabia. Offering a unique opportunity to interact with IDC's industry-leading analysts, the event provided senior ICT industry executives with in-depth analysis of the latest trends and developments shaping the Saudi ICT market, helping them to identify the key sectors, segments, and geographies to target. Dedicated sessions

explored the emerging opportunities that exist in key technology domains, such as Cybersecurity, cloud, artificial intelligence, and the Internet of Things, while IDC thought leaders shared their latest forecasts and predictions for the Kingdom's technology markets and contextualized the impact of global trends on the local environment. The agenda also featured a fascinating panel discussion examining the role that emerging technologies are playing in accelerating innovation across the Kingdom and enabling the goals of Vision 2030 and the National Transformation Program. Chaired by IDC's group Vice President and Regional Managing Director, Jyoti Lalchandani, the panelists included: Abdulrahman Althehaiban, Senior Vice President of Technology for MEA and CEE at Oracle; Salman Abdulghani Faqeeh, Managing Director of Cisco Saudi Arabia; Majed Abdulaziz Alotaibi, Chief Business and Wholesale officer of Mobily; and Ziad Mortaja, CEO of Al Moammar Information Systems (MIS).

Bahrain Reengineers 40 eServices; Cuts Costs by 88%

Bahrain's Information & eGovernment Authority (iGA) said that it has reengineering of 40 eServices, which allowed for an 88 per cent reduction in the costs of providing the government services, and a 74 per cent reduction in processing times. Across all channels, iGA eServices generated BD156 million ($411 million) through more than 1.6 million transactions during the year. iGA chief executive Mohammed Ali Al Qaed announced the results at a press conference detailing the achievements of the 2019 eGovernment Strategy. Al Qaed said that iGA initiated more than 400 active eServices since the launch of the eGovernment program, adding that these achievements reflect iGA's commitment to the directives of the Kingdom's senior leadership aimed at achieving the objectives of Bahrain's Economic Vision 2030. They also implement the decisions of the Supreme Committee for Information & Communication Technology (SCICT), chaired by Deputy Prime Minister, HH Shaikh Mohammed bin Mubarak Al Khalifa, and the directives of the Minister of Interior, HE Gen. Shaikh Rashid bin Abdulla Al Khalifa. The achievements also reflect iGA's commitment to its strategy of digital transformation. Al Qaed noted that the objectives of the strategy have been met in a range of 12 government sectors, including transportation, traffic, water & electricity, housing & real estate, education, health, employment, banking, etc. Al Qaed said that iGA continuously works with the public and private sectors to further improve its eServices, and will form a new strategy in 2020 aimed at further enhancing its digital transformation efforts and application of Artificial Intelligence (AI) technologies. Al Qaed said that iGA is committed to serving the public and regularly measures customer satisfaction levels across all eServices via its official social media accounts and surveys. It performs an annual customer satisfaction study and takes into consideration the findings of the Government Service Center

Evaluation Committee, Taqyeem. Al Qaed announced that iGA, in partnership with relevant entities, is close to launching the Sehati app, which will provide a unified platform for health services and will be of great importance to citizens, residents and visitors. The Sehati app was downloaded 42,414 times last year, while the usage reached 301,404 times. iGA deputy chief executive, eTransformation, Dr Zakareya Ahmed AlKhajah said that iGA implemented a number of innovations, such as improving its ePayment mechanisms, and launching 40 comprehensive eServices in cooperation with 14 government entities It has also worked with the financial sector on FinTech projects, launching an eWallet, the first of its kind in the Middle East; linking the financial sector to a Know Your Customer (eKYC) eSystem, activating an ID card updating self-service; and carrying out 37 comprehensive studies on government initiatives and services. AlKhajah delivered a presentation that showed an 82 per cent increase in the speed of processing transportation and traffic transactions in 2019, resulting in an 83 per cent reduction in the cost of providing the services, as well as improvements to traffic safety. He highlighted the main services that iGA developed for the sector, including online public transport vehicle registration renewals, and the issuing of international driving licenses. The presentation

highlighted the speed of delivery Electricity & water eServices to 67 per cent, reducing the cost of providing the services by 94 per cent, while the processing of justice and Islamic affairs transactions sped up by 55 per cent, reducing the cost of providing the services by 76 per cent. The complete of service delivery of community assistance program transactions improved by 75 per cent, reducing the cost of providing the services by 98 per cent, while housing and real estate transaction service delivery improved by 77 per cent, allowing for a 75 per cent reduction in the cost of providing the services . For education, transaction times improved by 75 per cent with cost of providing the services reducing by 85 per cent. Employment recorded processing time improvements of 70 per cent with cost of providing the services reductions of 98 per cent, also indicating improvements in communications with the public through the Government Notification System (NotifyMe) and the National Suggestion & Complaint system, Tawasul. He added that that iGA developed financial services in association with the private sector that achieved transaction time improvements of 83 per cent, reducing the cost of providing the services by 97 per cent, while the speed of processing of personal documents improved by 67 per cent, with reducing of the cost of providing the services by 97 per cent.

Pakistan and Iran to Expand ICT Cooperation

Pakistan and Iran have established a joint working group on information and communication technologies in line with the policies to expand bilateral scientific and technological ties. During a two-day meeting, which was held in Islamabad on February 6-7 between senior tech authorities from both sides, the working group was established as an adjunct unit of the Iran-Pakistan Border Trade Committee. Iran's Deputy ICT Minister Sattar Hashemi and Pakistan's Federal Secretary for IT and Telecom Shoaib Ahmad Siddiqui co-chaired the new group. "The newly-established unit is aimed at boosting collaboration for the development of ICT infrastructure, regulations and space science," Sajjad Bonabi, the vice-chairman of the board of Telecommunications Infrastructure Company of Iran, said in a tweet. According to Press Information Department, a Pakistan-based news website, the meeting's discussions revolved around exploring areas of cooperation in the field of ICT and creating an enabling environment for harnessing the benefits of the Fourth Industrial Revolution and the resulting

digital space for the greater benefit of people. During the session, both sides shared the achievements of their local ICT sectors and emphasized on learning from each other's experiences and enhancing their connectivity efforts. The meeting

concluded on the note of continuing discussions and collaborations in different tech fields for jointly achieving the United Nations' Sustainable Development Goals through the efficient use of technology.

"Meqyas" Report Reveals the Most Improved Companies in Internet Services Provided During the Fourth Quarter Of 2019

The Communications and Information Technology Commission (CITC) announced the most improved companies in Internet services provided for users in the Kingdom during the fourth quarter of 2019, as part of the indicators of the "Meqyas" report, which aims to monitor the overall level of Internet service quality provided in the Kingdom on a quarterly basis. The report findings showed an increase in the overall rate of performance of mobile Internet speeds, reflecting the continuous development of telecommunications and information technology infrastructure

in the Kingdom. The findings, which are accumulated by analyzing tests made by Internet users through the "Meqyas" smart device application, has also showed that Saudi Telecom Company (STC) achieved the highest average pf mobile Internet download speed of 52.7 Mbps between all service providers, an improvement of 16.1% compared to its performance in the previous quarter. While the average mobile Internet download speed for Etihad Etisalat Company (Mobily) reached 40.5 Mbps, an improvement of 4.4%. Furthermore, Saudi Mobile Telecommunications

Company (Zain) reached 39.9 Mbps, with an improvement of 23.1%, which is the highest improvement rate between all services providers in the Kingdom compared to the previous quarter. The "Meqyas" report was launched in 2018, by CITC to focus on an overview of the fixed-line and mobile internet performance across the Kingdom of Saudi Arabia. In an effort to identify possible improvements, improve the quality of Internet services and enhance competitiveness between companies providing services.

TRA UAE Hosts the MENA Spectrum Conference

The 5th MENA Spectrum Conference, hosted by the Telecommunications Regulatory Authority (TRA), was launched in the Emirati capital, Abu Dhabi in the presence of H.E. Majed Al Mesmar, Deputy Director General of The Telecommunications Regulatory Authority (TRA), representatives of telecommunications organizations in relevant countries, and decision makers in the spectrum sector from all over the Middle East and North Africa, to discuss key issues related to spectrum management and coordination in the region. The MENA Spectrum Conference aims through discussion sessions and presentations to foster cooperation and coordination between Arab countries and countries in the region in the field of frequency spectrum. Participants will address all developments in this sector based on the results, decisions and recommendations of the World Radiocommunication Conference (WRC), which took place from October 28 to November 22 in Sharm el-Sheikh. In a speech delivered at the beginning of the Conference, H.E. Majed Al Mesmar welcomed the guests, expressing his gratitude to all those who worked for the success of the event, which comes at a time when 5G and spectrum have become the talk of the hour. H.E. added: "Through this important Conference, we hope we can reach solutions that are not only sustainable, but also beneficial to all parties, through the diverse range of topics the Conference aims to cover. Today we stand before a wide range of potential challenges related to the implementation of 5G and other aspects of the Fourth Industrial Revolution (4IR), but the major challenge facing decision-makers in the spectrum sector is to ensure there is a strategy to keep up with this rapidly evolving environment, and to ensure that the required spectrum resources

are available when needed, while taking into account matters of efficiency and effectiveness." His Excellency emphasized that the UAE was keen to dedicate the time and effort, and work directly to pave the way for the future, adding: "Upon the conclusion of WRC-19, we adopted a motivational approach to encourage our operators to implement 5G technologies as quickly as possible, and the UAE has updated the National Frequency Plan to accommodate WRC decisions. Furthermore, we held in December 2019 the UAE 5G Conference with wide participation of experts and decision-makers from all over the world, and we have developed the first 5G strategy, drawing a clear roadmap towards the application of this revolutionary technology in the next 5-10 years." The two-day Conference agenda includes many discussion sessions, presentations, and open dialogue sessions which highlighted the importance of spectrum in achieving sustainable development in the world and strengthening the efforts of cooperation and coordination among the

Arab countries and North Africa in this field on one hand, and between them and the rest of the regional groups falling under the ITU umbrella on the other. This Conference comes shortly after the conclusion of the 26th ASMG Meeting, hosted earlier this month (February 9-11) by the TRA. The Meeting aimed to review WRC results, identify new working groups and distribute all WRC-approved agenda items to mini groups, in addition to distributing ASMG roles and tasks to ITU study committees and working groups. Arab countries attained five leading positions during WRC-19 as follows: Dr. Omar Badawi (Egypt) appointed as President of the WRC, Eng. Tariq Al-Awadi appointed as Vice Chairman of the WRC and leader of the ASMG, Eng. Sultan al-Baloushi (UAE) as head of Working Group 4A on the discussion of IMT-related matters, Eng. Ahmed Amin (UAE) as Chairman of Working Group 5A on satellite service topics, and Eng. Mohamed Suleiman (Egypt) as Chairman of Working Group 5B dealing with items related to satellite services.

TRA UAE Launches a New System for Innovation

H.E. Majed Al Mesmar, Deputy Director General of The Telecommunications Regulatory Authority (TRA), launched the TRA's innovation system, which is a comprehensive system for managing digital innovation. The system allows TRA employees to share their innovative ideas, and verify and validate their execution. The system works according to specific mechanism to regulate the innovation process starting from challenges, to developing ideas and converting them into tangible projects. The new system guides innovative ideas and links them to TRA goals and strategies. The system also supports users through an interactive innovation lab and interactive brainstorming sessions, as It was designed according to the concept of open innovation, based on collecting ideas and developing them through sharing ideas between employees, and discussing them to ensure their development and achievement of best results. Commenting on the new system, H.E. Majed Al Mesmar, TRA Deputy Director General for the Telecommunication Sector, said: "Innovation is an element of the UAE vision 2021 pillars that fall under "United in knowledge", which seeks to achieve diversified and flexible knowledge-based economy powered by skilled Emiratis and strengthened by world-class talent to ensure long-term prosperity for the UAE. The UAE Government, under the directives of our wise leadership, has given innovation a high priority, being the true drive of nations. Hence, TRA has launched several initiatives and projects aimed at stimulating innovation among TRA employees in particular, and its customers in general, based on its responsibility for one of the most important sectors in the era of the industrial revolution. Among these initiatives is the innovation system that we launched, which will work to enhance the culture of innovation in TRA by adopting creative ideas and developing them according to deliberate mechanisms to transform them into tangible projects that contribute to supporting the innovation process in the country." The new system will open the door wide for the creators from TRA employees to present their innovative ideas, reflecting the innovation

policies in the UAE, which aim to transform the concept of innovation into an effective and lasting institutional work culture in the UAE government. It also aims to enhance the innovative capabilities of the Emirati human resources, and produce results that stimulate economic activity and enhance the global competitiveness of the UAE. The system was specially designed to support the creators to develop their ideas

through the brainstorming workshops and the virtual innovation laboratory, where each idea will be subject to an organized process consisting of six stages, to ensure that this idea is given care, development and attention. The innovation system launched by TRA sorts creative ideas presented by users according to specific areas that serve TRAs' work and strategies. These areas are capabilities, corporate communication and organization, operations systems, sustainable financial system, innovation, human resource management, resource security and the environment, and the general direction of the sector. The innovation process in the system takes six main steps, starting from presenting the idea, analyzing, developing it to converting it into a project and a success story. The system simplifies the process of presenting and controlling ideas, while providing a standard mechanism for evaluating ideas. The ideas

presented goes through virtual innovation laboratories, which constitute a space for collaboration among employees in the field of innovation, in order to think, discuss, develop ideas, identify challenges and push innovations forward. These labs include innovation teams that work according to the lab's agenda, which determines the start and end of each activity. The system also includes criteria for evaluating ideas

and determining the degree of their importance, where specialized experts evaluate ideas, study their feasibility and contribution to TRA goals, so that the best ideas are converted into projects and consequently, into success stories. The system also includes an innovation handbook that forms a complete reference for practicing innovation, and provides useful information for all users about the process of innovation, evaluation and implementation. The handbook consists of several chapters, and each chapter consists of a number of topics. TRA organizes a number of innovation events throughout the year such as the Summer Innovation Camp. It is also keen to enhance cooperation and coordination with all government and private entities in the field of innovation to support the UAE achievements in various fields, especially in the ICT sector.

The Fourth Industrial Revolution is Coming to the Middle East

Saudi Arabia will soon be the host of one of the most prestigious institutions at the heart of the World Economic Forum's (WEF) effort to shape the development and application of emerging technologies for the benefit of humanity. The Saudi branch of the Center for the Fourth Industrial Revolution (C4IR) — a network of technology-governance hubs and affiliate centers — will be the outcome of an agreement reached late last year between the Kingdom and the Swiss-based non-profit organization. The agreement heralds a new era of cooperation between the WEF and the King Abdulaziz City for Science and Technology (KACST), supported by the Saudi Center for International Strategic Partnerships (SCISP). At the 50th annual WEF meeting in Davos, it was also announced that a conference on "the Middle East in the Fourth Industrial Revolution" would be convened in Riyadh on April 5-6. The WEF's website says: "Saudi Arabia's G20 presidency in 2020, the first time an Arab and Middle East country has such a mandate, presents a unique opportunity for the entire region to take a global view of its future."

4IRTECH
- Artificial Intelligence and Machine Learning.
- Autonomous and Urban Mobility.
- Blockchain and Distributed Ledger Technology. Data Policy.and digital trade, plus drones and Tomorrow's Airspace.
- Fourth Industrial Revolution for the Earth.
- Internet of Things, Robotics and Smart Cities; and precision medicine.

The April meeting is billed as "a crucial opportunity to rise above the fog of geopolitical uncertainty and the gravitational forces of legacy conflicts and scale up the efforts of the region's outstanding thinkers and practitioners who are committed to a can-do, positive agenda for the region and its people." In a 2015 essay in the magazine Foreign Affairs the founder and executive chairman of the WEF, Klaus Schwab, had defined the 4IR thus: "The First Industrial Revolution used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production. "Now a Fourth Industrial Revolution is building on the Third … It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres." Muhammad Khurram Khan, CEO of the Global Foundation for Cyber Studies and Research in Washington, said the decision to establish a 4IR center in Saudi Arabia demonstrated the leadership's commitment, in line with its National Transformation Plan (NTP) and Saudi Vision 2030, to "developing effective solutions to the challenges faced by organizations, while creating capacity and capability in the Kingdom." According to Khan: "Governments around the world are investing heavily in cutting-edge and emerging technologies to boost gross domestic product and diversify their economy. "The 4IR could help governments and organizations to drive economic development, competitiveness and social progress." "This will help overhaul the national economy by investing in modern technologies to create alternative sources of revenue, as well as new jobs and opportunities." The Saudi government has said KACST will manage the affiliate center in cooperation with the WEF, providing space for the development of 4IR mechanisms, plans and applications in the Kingdom. It is also expected to "contribute to the adoption of technology and best practices in the region and the world, reinforcing the directives of the leadership and harnessing the tools provided by the 4IR to serve the Kingdom." The C4IR network, which is headquartered in San Francisco, currently has hubs in India, China and Japan, in addition to the affiliate centers. The network "brings together governments, business organizations, dynamic startups, civil society, academia and international organizations from around the world to work together across nine emerging technology areas," including artificial intelligence (AI) and machine learning, autonomous mobility, data policy, drones, the Internet of Things (IoT) robotics, and smart cities. Furthermore, C4IR partners can send fellows to any of the four main hubs or affiliate centers, thus enabling a continuous exchange of insights and knowledge sharing. "Having such a center is very important to Saudi Arabia, given the heightened levels of tensions as well as recent attacks on the Aramco pipeline," said Matthew Cochran, CEO and co-founder of URS Laboratories in the UAE. By virtue of its location, the center will facilitate customized solutions based on real-world requirements that are different for Saudi Arabia to other places in the world, he said. Citing the September 2019 drone strikes on Saudi Aramco's oil facilities in Abqaiq and Khurais, and the many cyber-attacks on the Kingdom in the past, Cochran said: "The 4IR and the ability for countries and governments to react quickly is a challenge globally. "Saudi Arabia has shown, especially in the past 12 months that they are willing to change and adapt their responses to threat levels with new ways of protecting their assets. "It must be a coordinated approach across all government agencies and, just as in the US, we have an increasing landscape of commercial security working with government security to protect vital assets." That being said, Cochran expects the C4IR's Saudi center to face challenges similar to what many other technology-governance institutions are grappling with. "As AI and machine learning become faster and better, we will have machines talking to robots and robots speaking to unmanned vehicles, in the air, on sea and land," he said. "The potential challenges will be, in some ways, simply setting up the ability for those machines, robots and vehicles to deliver their requirement safely, with humans either in the middle or as the end-user." As a host government, Saudi Arabia will be expected to commit to supporting and advancing the development and deployment of pilot frameworks on topics aligned with projects launched by the C4IR network, according to the WEF's website. "The Kingdom's participation in this global initiative of the WEF is a golden opportunity for extending economic relations, exploring investment prospects and learning from — and sharing experiences with — industrially developed countries," Khan said.

SAP to Support Digital Pakistan's Nationwide Transformation

SAP has underscored its Pakistan investment plan to support Digital Pakistan's nationwide digital transformation, diversified economic growth, and digital job creation, following a meeting between the Prime Minister His Excellency Imran Khan and SAP Co-CEO Christian Klein at the World Economic Forum. Pakistan's economy is rapidly growing at 5.8 percent, with strong investment in the digital sector, according to the World Economy Forum. Industry experts agree that Pakistan can leverage the Fourth Industrial Revolution with new and emerging technologies to digitally transform industry verticals. The following step will be to develop the future-ready workforce. On the sidelines of the recent World Economic Forum in Davos, Christian Klein praised the Pakistan government's digital transformation. He also highlighted SAP's long association with Pakistan for more than 20 years, along with its commitment to train young software engineers to take on digital careers. "Public-private partnerships are vital for enabling Digital Pakistan's goals of an inclusive and high-growth digital economy," said Saquib Ahmad, Managing Director, SAP Pakistan. "SAP's long-term investment and support for Digital Pakistan is building in Pakistan for Pakistan. We are supporting customer co-innovation, channel partner ecosystem, and training Pakistani talent for new skills and jobs." In Pakistan, SAP co-innovates across industry verticals including government and public sector, agriculture, automotive, banking and finance, fast moving consumer goods, telecommunications, and textiles. Recently, SAP launched its Service Hub, the company's channel partner implementation arm, to ensure the successful digital transformation of Pakistan's organizations. SAP continues to train Pakistan's workforce of the future. For example, the Training and Development Institute's Young Professional Program, a 3-month-long course in technical and soft skills, has seen 5 cohorts totaling 130 participants graduate as SAP Associate Consultants. Worldwide, 99% of Young Professional Program graduates have successfully secured work placement. Among SAP's Pakistan workforce, 50 percent of the members come from the SAP Academy, which provides a world-class training experience for participants seeking roles in Sales, Presales, or Commercial Sales.
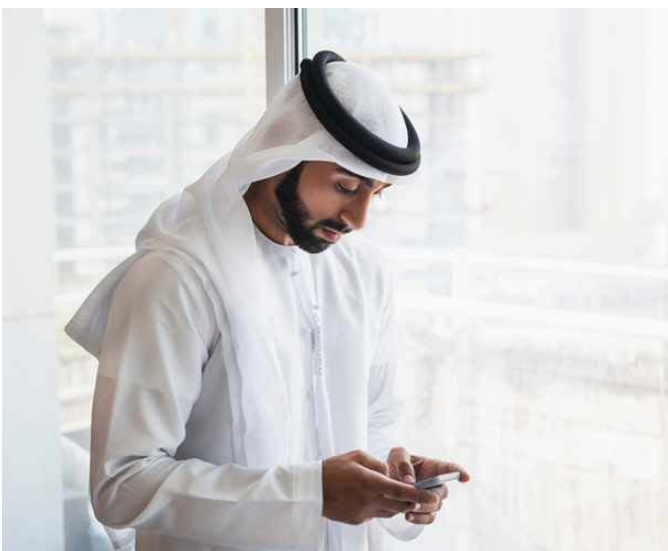
UAE Telecommunications Subscribers Hit 23.64 Million in 2019

The number of telecommunications subscribers in UAE mobile, fixed-line and data services amounted to 23.64 million in 2019, according to statistics released recently by the Telecommunication Regulatory Authority, TRA. The number of mobile phone subscribers reached around 18,278,817, which equals to 204.3 lines per 100 inhabitants last year, according to TRA's figures. Prepaid-service subscribers numbered 14,655,021 in the reference year, while post-paid service mobile subscribers reached 3,623,796. Mobile phone services account for 77 percent of the revenues of the country's main operators, Etisalat Group and Emirates Integrated Telecommunications Company. Up to 3,016,318 people subscribed in internet services until August, while fixed-line subscribers hit 2,345,578.

Dubai RTA to Use Big Data to Screen Customer Needs

Dubai's Roads and Transport Authority (RTA) plans to use big data received through customers relations management (CRM) system, call center, website and digital media in screening customers' reviews and trends related to RTA services on offer. In a meeting with directors at RTA's Corporate Administrative Support Services Sector, Mattar Mohammed Al Tayer, director-general and chairman of RTA, stressed the importance of improving RTA services to customers. He called for simplifying procedures and reducing the time of processing RTA's transactions to keep it at par with the top global practices. Analyzing customers' reviews and trends is part of RTA's digital strategy deliverables of using big data in improving customers' satisfaction. In the initial phase, views and reviews received via the CRM system and Twitter account will be analyzed and geographical sources will be identified. In a later stage, the process will cover demographic analysis and spread across all mass media channels. The meeting reviewed the automation of customer needs (FICI) to enable RTA customers to obtain services customized to their needs and preferences and more accessibility. The system, the first of its kind among government entities, lists and analyses all data from different sources with the aim of leveraging customers service experience.

It requires a proactive understanding of customer needs and expectations along with the challenges they might face. It also requires identifying and carrying out improvements on existing services and channels of delivering services. RTA perceives the need to develop new service platforms that surpass customers' expectations and add to their happiness. During the gathering, a presentation on project design standards manual of RTA's Buildings and Facilities Department aimed at standardize building facilities and utilities was made. Due consideration was given on highlighting RTA's corporate identity in architectural designs of buildings. The initiative aims to study and standardize the core elements of each technical project in accordance with the standard technical specifications and operational requirements. It also calls for studying and identifying the required areas for each element to ensure optimal utilization of areas. The initiative compiles information relating to projects to use as a technical reference in verifying the optimal design and reviewing the architectural features besides reviewing the external details of buildings in terms of building materials, colors and engineering shapes.

Mobilis LTE Reaches all Algerian Provinces; Passes 10M 4G Users

Algerie Telecom Mobile (Mobilis), a 100%-held subsidiary of state-owned Algerie Telecom, announced on its website that its commercial 4G LTE mobile network now covers all 48 wilayas (provinces) of Algeria, as of 1 February 2020, having switched on network sections in 16 additional wilayas. The full LTE footprint went live under authorisation from the Authority for Regulation of Post & Electronic Communications (Autorite de Regulation de la Poste et des Communications Electroniques, ARPCE), after Mobilis' existing LTE network met the regulator's minimum obligations of service quality and coverage. Cellular market leader Mobilis simultaneously announced that it has passed the milestone of ten million LTE subscribers, having launched its 4G network in October 2016.

Tunisia Launches the Internet Universality Indicators Assessment

Recently, the Internet Universality Indicators (IUIs) assessment was officially launched in Tunisia, breaking ground by making Tunisia the first country in the Arab region to initiate this assessment at national level. The launch was convened on the occasion of the first meeting of Tunisian Multi-stakeholder Advisory Board (MAB), participated by 11 prominent members of the Board. "The Tunisian MAB endorsed the use of UNESCO's Internet Universality Indicators and the proposed methodology for the assessment in Tunisia and encouraged all other concerned stakeholders, on a voluntary basis, to support the national assessment of Internet development in Tunisia with the Internet Universality Indicators. Such engagement is crucial to formulating and implementing UNESCO recommendations that can help improve Internet development in the country", said Ms. Golda El-Khoury, Director & Representative – UNESCO Cluster office for the Maghreb. The launch event highlighted

the role of the newly created MAB, responsible for overseeing the research process through a truly inclusive and multi-stakeholder manner. The 11 MAB members are leading experts representing different groups and government branches including the Ministry of Communication Technologies and Digital Economy, the High Independent Authority of Audiovisual Communication (HAICA), the National Agency for Information Security (ANSI), Access Now, the Research and Studies Telecommunications Centre (CERT), University of Sfax, Forum DSI, and the National Telecom Regulator in Tunisia (INTT). UNESCO staff Nejib Mokni presented an overview of UNESCO's. Ms. Karima Mahmoudi, Director at INTT and Ms. Wafa Ben Hassine presented the assessment process conducted by the National Telecom Regulator of Tunisia (INTT) who is the leading national organize, the data collection, and methodology in Tunisia. They discussed the methodology suggested for the assessment of the IUIs

in Tunisia, which was the main objective of this first meeting. In their presentation on the progress of IUIs in Tunisia, they also described the process, and explored some of the challenges faced including "some data which availability was still unclear," and policies in development that may affect the applicability of the indicators. After the presentation, a discussion was held during which board members expressed their views on the topic presented and shared some of their own reports and statistics. By participating in the meeting and helping with the process from data collection to methodology, members have shown interest and enthusiasm in the process. The Internet Universality ROAM-X Indicators framework is a set of 303 indicators that aims to assess how well national stakeholders including governments, companies and civil society perform in adhering to the ROAM standards of Rights, Openness, Accessiblity, Multistakeholder participation. Developed over a three-year process of global and inclusive consultations with stakeholders, it was endorsed in November 2018 by the 31st Council of the International Program for the Development of Communication (IPDC). Since then, UNESCO has been working with stakeholders and encouraging more countries to implement national assessments of Internet development using the Indicators. The first assessment of Internet Universality indicators was completed in Brazil and has been published by UNESCO as the first edition of the newly created Series of National Assessment of Internet Universality Indicators.

Telecom Imports Rise in Pakistan

Pakistan's overall telecom imports bill surged by 29 percent to $844.657 million in July-Dec 2019-20, official figures say. Increase in the telecom imports reached to the tune of $188.73 million in July-Dec 2019-20 from $655.927 million in July-Dec 2018-19, Pakistan Bureau of Statistics suggests. The country imported 47.17 percent or $51.889 million more telecom

goods to $161.895 million in Dec 2019, from $110.006 million in Dec 2018. Up by 69.25 million or $252.102 million, mobile handsets import grew to $616.148 million in July-Dec 2019-20 comparing with their import of $364.046 million in July-Dec 2018-19. Cellular phones import in Dec 2019 stood at 98.13 percent or $58.287 million to $117.682 million from $59.395

million in Dec 2018. However, import of other apparatuses scaled down by 22 percent or $63.372 million to $228.509 in July-Dec 2019-20 from $291.881 million in July-Dec 2018-19. Import of other apparatuses reduced to $44.213 million in Dec 2019 from $50.611 million in Dec 2018.

Mobile Prices Down 15 Percent, Data Usage Jumps 74 Percent in Bahrain

Telecom companies in Bahrain offer the lowest prices in the GCC and Arab markets, TRA's latest report said, especially in the high usage baskets. Fixed broadband prices in Bahrain are 19 per cent lower than the average prices in the GCC countries, thanks to higher competition and the regulatory framework. Telecommunications Regulatory Authority's 2019 Telecommunications Retail Price Benchmarking compares telecom prices in the Arab countries and the OECD countries.

Mobile rates down 15pc

Between 2018 and 2019, mobile prices in Bahrain decreased by 15 per cent, as mobile subscriptions with data services reached 78pc by the end of 2019. TRA said changes in consumers' usage behavior from traditional voice services to data services have "contributed somehow to reducing the number of mobile subscriptions in the recent years and this is what has also been observed in other GCC countries." "Despite this decrease, the mobile penetration rate in Bahrain is still one of the highest in the world, and it is also higher than the average penetration rate in developed countries," the report said. Mobile data usage increased by 74pc between 2017 and 2018, the report said.

Fixed broadband subscription rises
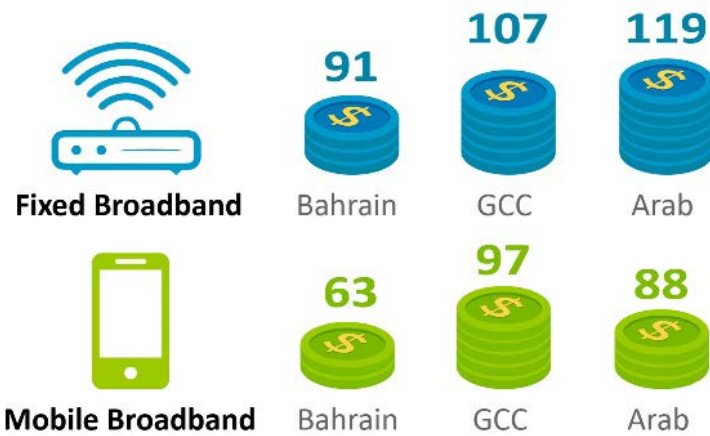
Since the issuance of the Fourth National Telecommunications Plan, the number of fixed wired broadband subscriptions has dramatically increased to 123 thousand subscriptions by the end of 2019, an increase of 71pc since the issuance of the plan in the middle of 2016. Broadband penetration rate reached 157pc by the end of the third quarter of 2019, and Internet data usage increased by 185pc between 2015 and 2018. The competition, TRA said, has contributed to lower prices for fixed broadband services with high speeds. The latest indicators show that 92pc of all fixed broadband subscribers get 10MB/s and more, compared to only 36pc in 2015.

Internet users at 99pc

Internet users in Bahrain reached 99pc, thanks to competitive prices. According to the World Economic Forum's 2019 Global Competitiveness Report, Bahrain is ranked fourth globally in Internet users.

High user satisfaction

The competitive prices, TRA said, also contributed to achieving high levels of user satisfaction, as 85pc of broadband users and 82pc of mobile users are satisfied with their services. "Promoting competition and encouraging investment in the telecommunications sector is ongoing and keeps pace with all economic developments and the latest global technologies in order to bring more benefits to users," says TRA's Acting General Director Sh. Nasser bin Mohamed Al Khalifa. He added: "In this regard and after achieving Batelco separation and establishing the National Broadband Network, TRA is implementing a number of initiatives that will enable this network to provide advanced services allowing operators to provide various services at competitive prices." On mobile services, TRA said it has provided the required spectrum and granted sufficient frequency licenses to provide 5G services, making Bahrain one of the first countries in the region to establish 5G networks. "Through these initiatives, TRA seeks to achieve the government strategic goal to keep Bahrain at the forefront regionally and internationally and make it a regional hub for trade and ICT," Sh. Nasser said.

Fixed Broadband — Bahrain 91, GCC 107, Arab 119

Mobile Broadband — Bahrain 63, GCC 97, Arab 88

Bahrain Sees Surge in Online Business

Bahrain is witnessing a surge in online entrepreneurs and e-commerce platforms, according to a top official. Leading the nation's move towards a digital economy are portals that offer users a wide range of options from buying groceries, beauty products, electronics to making purchases of niche products at the click of a button. Industry, Commerce and Tourism Ministry Information Systems Director Maram Al Mahmeed said over the years there has been an increase in the number of e-commerce business registrations.

"The trends for the digital economy are encouraging as we see a growth," she told the GDN yesterday. "We do not have exact numbers, but rough estimates show there are more than 500 businesses registered (commercial registrations) under Internet activities." The CR registration online portal Sijilat has made it easy for entrepreneurs to complete the process in a matter of seconds, she explained. "It takes a couple of seconds for the e-commerce company to be set up, after paying the fees." She was speaking to the GDN on

the sidelines of the Bahrain eCommerce Conference held under the theme 'Build Your Online Business'. The event was held at the Gulf Hotel Bahrain under the patronage of Industry, Commerce and Tourism Minister Zayed Alzayani. The annual event of the Bahrain eCommerce Academy was attended by startup owners and young minds, to discuss the recent trends in digital economy. "E-commerce in the Middle East is set to be worth $48 billion by 2022 with 16.4 per cent growth in the next few years," said Thinksmart for

Development and Training chief executive Ahmed Alhujairy. "We need to think about the future and the digital trends or else many businesses will cease to exist. "For example, we hear about the revival of the old suq facing competition from shopping malls, now these malls are facing competition from e-commerce." He said businesses need to realise, invest and train to be a part of the digital transformation. "Ever since the Bahrain eCommerce Academy was launched in 2018 it has helped train over 175 entrepreneurs in e-commerce and set up online businesses." In his opening remarks ministry assistant under-secretary of control and resources Abdulaziz Alashraaf said a comprehensive

plan was in place to ensure full readiness to deal with the requirements of the digital economy, through training and investment. Attending yesterday's event was BabyGulf founder Basel Qabouq, a Jordanian, who along with his Bahraini partner Loay Abdul'al launched the startup in 2018. "We deliver Nappy diapers to online customers across Bahrain," said Mr Qabouq. "There are a lot of new dads who don't want to go the supermarket to buy diapers, and instead book in bulk through our website. "Our business is growing fast and we plan to expand to the UAE and Saudi markets soon." Another start-up owner who was honored yesterday was Hind Abdulla who started Occasionallygifts.com, along

with her sister. "We sell customized gift boxes for different occasions and plan to introduce more products," said Ms. Abdulla. Independent US economic think-tank, Milken Institute, said last month that Bahrain is poised to become a major hub for technology, innovation and finance. It said since its launch in 2018 the Bahrain FinTech Bay has attracted 30 companies, out of a target of 50 to 60. Furthermore, the recent emphasis on startups and technology has also paid off especially with the creation of $100 million Al Waha Funds of Funds to provide funding access to Bahrain's startup industry.

Digital Transformation Changes Lives in Moheshkhali Island of Bangladesh

The Moheshkhali Island, a popular destination for tourists, has now been transformed into a digitalized locality with modern facilities. In some cases, it is more advanced than some other regions of the country. Moheshkhali's digital transformation has helped third grader Tasnia learn different subjects directly from Dhaka through video conferencing under the distance learning program of JAAGO Foundation. Tasnia is not the only one. Several hundred other students are being taught by experienced teachers from Dhaka through e-learning. "A teacher from Dhaka is teaching us English through video conference. We're enjoying the class and learning new lessons regularly," Tasnia told UNB. Anwara Begum, a resident of the island, recently took her 6-year-old daughter to the Upazila Health Complex. As her condition was critical, duty Doctor Shib Shekhar Bhattacharya consulted a specialist physician through video conference and prescribed the girl some medicine. It saved a family of unnecessary worries, time and money. Availability of technology also led to sprawling online business and employment generation. Didarul Islam, Marufa Nasrin Lopa, Romana Akter and six other youths launched an online trading platform 'E-business Centre' for selling dried fishes produced on the island. They are supplying dried fish to all corners of the country in addition to local buyers and tourists. These products are

also being sold through online shopping platform Daraz. All these changes were possible thanks to the implementation of a public-private partnership (PPP) project. The ICT Ministry, Bangladesh Computer Council, Korea Telecom and the International Organization for Migration (IOM) jointly undertook the "Digital Island-Moheshkhali" project. JAAGO Foundation joined the project as an implementing partner in April 2017. Prime Minister declared Moheshkhali as a "Digital Island" on April 27, 2017. Since then, residents in the Moheshkhai Municipality and two adjacent unions are being provided

with digital services, including e-service center, digital school, e-commerce center and high-speed internet for all. The pilot project turned the island into an emerging technological hub. Locals said the project helps local teachers improve their capabilities through e-learning and e-teaching. Currently, 25 schools here are being provided with high-speed internet. Besides, a good number of students of ten primary schools are being taught directly from Dhaka through video conferencing. Patrick Charignon, head of transition and recovery division (TRD) of IOM, said Moheshkhali Island was selected for the

project as it is one of the least developed areas of Bangladesh. The illiteracy rate here was higher than other parts of the country. Besides, salinity of the soil impedes crop cultivation. The future of the island was uncertain as youths were migrating to other places. The Digital Island Project aimed at creating opportunities for the inhabitants through expanding the existing services under the Department of Information and Communication Technology, he added. The project achievements include the renovation of

an existing tower and installation of giga microwave technology that enabled the residents to access internet with a speed of upto 100MBPS. Md Jamirul Islam, Upazila Nirbahi Officer of Moheshkhali, said the Digital Island is a multipurpose project that connected one of the isolated sections of Bangladeshi people with the world. "The island underwent a positive change thanks to the pilot project. The results are now visible. People are availing different services like telemedicine, distance-learning and community clubs.

The upazila administration is performing 80 percent of its official activities through e-filing," he said. Moksud Mia, mayor of the Moheshkhali Municipality, said inhabitants of the island are being benefited by the project in many ways. Students are getting standard lessons thanks to access to internet. Currently, the project is being implemented in three unions of the upazila. It should be expanded to seven other unions, he added.

Dialog Enterprise Pledges to Digitalize the Finance Sector in Sri Lanka

Dialog Enterprise, the business solutions arm of Dialog Axiata PLC, showcased its readiness to digitalize the financial sector of the country with cutting-edge solutions, further enhancing service offering to take its clientele on a steady growth trajectory. The company announced this preparedness to the finance industry at the annual fellowship organized for the Banking, Finance & Insurance sector under the theme 'Bridging the Digital Divide'. The event was held recently at The Kingsbury, Colombo with the participation of CIOs, CTOs and IT Leads representing country's financial sector. Rejuvenated with its vision set for the new decade, digitally enriching Sri Lankan enterprises and its workforces, Dialog Enterprise is committed to creating a compelling experience to the Finance sector; improving efficiency and speed to market, and better serving their customers. Expanding its wings as a leading Digital Business Partner for businesses, Dialog Enterprise now challenges the ICT

market with a product portfolio entailing Converged Communications, Cloud & Data Centers, Security and Surveillance, IoT and SDN (Software-Defined Networking). While updating its clientele on a new product portfolio, Vice President - Enterprise Business and Large Enterprise Sales of Dialog Axiata Navin Pieris said, "We are privileged to host this fellowship for our banking, finance, and insurance customers as a platform to share technology insights and present how the convergence of cutting-edge solutions can disrupt traditional development models and shape the future of new-age business models, with practical applications. Dialog Enterprise keeps its promise of taking the country's financial sector to the future by offering new product lines, as focus and innovation are the core values enriched and extended to our valued customers. This has always been the change catalyst in the telecommunication and ICT domain of Sri Lanka and we would like to express

our full confidence to partner with our clientele to power the future of the banking ecosystem." The event featured the keynote delivered by Sachin Seth, Partner Digital, Fintech, Cloud & Tech. Transformation Leader, EY Advisory (Africa, India & the Middle East). Highlighting the salient role telcos play in the digitalization drive of the financial sector, Sachin stated, "Embracing a strategic, forward-looking business model is critical to survival and growth. Considering the maturity of mobile telecom companies in Sri Lanka, and their wider reach and penetration in comparison to the banking industry, there remains potential for Last Mile payment services gaining even greater traction in the country". In addition, he also discussed how telecos actively engage in serving financial service companies by bringing together services and providing innovative customer experiences." The cynosure of the event was the panel discussion which dwelt on the challenges currently confronted by the banking, finance, and insurance sector in the presence of digital transformation, and how to better serve customers through the convergence of enterprise solutions to attain assured speed to market with new product development on par with ever-changing customer needs. The panel comprised of renowned industry professionals including the Group Chief Operating Officer of Dialog Axiata PLC, Dr. Rainer Deutschmann., The Chief Information Officer of Hatton National Bank PLC Mr. Ruwan Bakmeedeniya, General Manager of LFSBL Mr Mihindu Rajaratne and The Chief Information Officer of Seylan Bank Mr. Harsha Wanigatunga.

10 Innovations Have Been Awarded in National Hackathon Organized by Bangladesh-India Jointly

"National Hackathon on Frontier Technologies" was organized successfully by the "Innovation Design and Entrepreneurship Academy (iDEA) project" under ICT Division with its Startup Bangladesh banner. To solve the most citizen-centric 10 challenges of Bangladesh, this two-day long hackathon has been organized with the slogan "Think. Hack. Solve.". The hackathon was held on the campus of Independent University, Bangladesh (IUB), Dhaka, on February 28 and 29, 2020 in collaboration with the "High Commission of India in Bangladesh" and "Tech Mahindra Limited (TechM)". The closing ceremony of the hackathon was held at IUB Auditorium on Saturday, 29th February 2020. Mr. Md. Tazul Islam MP, Hon'ble Minister, Local Government Division, Bangladesh was present as the chief guest at the closing ceremony. He said that we could make Bangladesh a better country. With the proper use of our country's innovation and capacities in different countries of the world for the economic development of the country, it is possible to move the country further. Bangabandhu dreamed about Sonar Bangla. It is our constant courage to dream that our young people

will go ahead with innovative thinking. Bangladesh is taking this Sonar Bangla to the faith of all these young people. Young people will build a beautiful Bangladesh in the future. Mr. Zunaid Ahmed Palak MP, Hon'ble State Minister, ICT Division of Bangladesh as the Guest of Honor said that local innovation could also be a global solution. So, we need to do a bridging of local solutions and local innovation on how we can take global solutions and global markets. All innovations in the world have come on the basis of mutual understanding and partnership of the three parties: government, academia and industry. He gave the example of various innovators established in the world, saying that first an innovator thought, imagined and possibly solved his idea. Then it has an industry connection with academia and innovators and it needs government policy and legal support to make it marketable and scalable. Finally, he thanked everyone for participating in this hackathon to solve domestic challenges and at the same time said that all the young innovators will be supported by Startup Bangladesh-iDEA in the future. Mr. Sujit Baksi, president of Corporate Affairs was present on behalf of Tech Mahindra Limited at the closing

ceremony of the hackathon. He said that the Tech Mahindra platform will be used to take the ten challenges that have been selected and the outstanding solutions that come from our young innovators to the international market. The winning teams will be provided mentoring and training along with research and technology co-ordination at the Makers Lab of the IT institute of TechM. Finally, he thanked the ICT Division and the "High Commission of India in Bangladesh". Shri Biswadip Dey, Deputy High Commissioner of India to Bangladesh was there as a guest and thanked the government of Bangladesh for organizing such a timely development in the ICT sector. Apart from this, Sheikh Mujibur Rahman NDC, Secretary (Coordination & Reforms), Cabinet Division and Dr. Mosammat Nazmanara Khanum, Secretary of Ministry of Food were the special guest on the occasion. Total 10 university campaigns held as part of promotions. From 349 shortlisted innovative solutions from all the applications across the country, the top 51 teams consisting of approx. 150 innovators have participated in this hackathon. Forty mentors were there to guide all participants. Finally, the top

10 teams awarded as the winner at the closing ceremony. The winning teams will be provided mentoring and training with R&D support at "Makers Lab" of TechM, India. At the same time, the necessary investment will be made in maturing the innovative project. After the maturity of the projects, they will be supported to bring their project to the growth stage by promoting through the marketing channels of TechM in different countries of the world. In Hackathon, 10 judging boards were formed for 10 challenges, where 30 experienced judges selected the Winner. The top 10 innovations from this hackathon were announced and awarded as winners at the closing ceremony of the hackathon on Saturday, February 29, 2020. The list of 10 winners are at below-

1. Team Anton with the project "Onnesha"for the challenge category of "Introduction of a comprehensive system to prevent rumors."
2. Shout#2 with the project "Digital Public Service Platform" for the challenge category of "Developing an Effective Tool for Monitoring of Rural Road Development Projects."
3. Trojan with the project "Green_BD"for the challenge category of "Introduction of an Effective and Modern Solid Waste Management System."
4. Originative-1 with the project "Integrated Market Intelligence Platform" for the challenge category of "Create an "Integrated Market Intelligence Platform" to keep the prices of the daily essential commodities stable."
5. Brogrammers with the project "An IoT based Smart Warehouse for preserving grains properly." for the challenge category of "Smart Warehouse (LSD / CSD / Silo) for preserving grains properly."
6. Lambda with the project "Porjobekhon" for the challenge category of "Introducing "Real Time Building Construction Monitoring System" to monitor building construction for ensuring the compliance of building codes."
7. Ruet Abacus with the project "Occupational Safety and Health" for the challenge category of "Introducing "Introducing appropriate "Intelligent System" to ensure occupational safety and health."
8. Team Cygnus with the project "Communication Based Rail Traffic Control With Cab Signalling" for the challenge category of "Modernization of "Cab signaling" system to prevent rail accidents".
9. Xander with the project "The Coast Gaurd" for the challenge category of "Implementation of modern "Naval Signaling / Tracking System" to prevent boat/naval accidents".
10. Buet_Scammers with the project "Drive Save Live" for the challenge category of "Modernization of "Driving License" and "Motor Vehicle Fitness Certificate" issuance system to prevent road accidents".

Executive Director of Bangladesh Computer Council (BCC) Mr. Parthapratim Deb gave welcome address at the closing ceremony and the program was chaired by The Additional Secretary of ICT Division Md. Rashadul Islam. The Vote of Thanks was given by Syed Mojibul Huq, Project Director (Additional Secretary) of iDEA Project. ICT Division and other relevant ministries, officials of the Indian High Commission in Bangladesh and Tech Mahindra were also present on the occasion.

Ooredoo Renews Omani Fixed, Mobile License

Ooredoo Oman has announced that its license to provide fixed and mobile telecoms services has been renewed through a Royal Decree following approval from the Telecommunications Regulatory Authority (TRA). Early last year the regulator finalized the procedures for the renewal of the Class 1 licenses of both Oman Telecommunications Company (Omantel) and Ooredoo Oman. The former's concession was extended for a period of 15 years – commencing on 11 February 2019 – for a cost of OMR75 million (USD194 million), while Ooredoo's licence was also extended for 15 years – valid from February 2020 – at a price of OMR75 million. 'We're delighted to have our mobile license renewed, which is the result of much work and negotiation that takes place behind the scenes,' commented Ian Dench, CEO of Ooredoo Oman, adding: 'Our thanks go to the Ministry of Technology and Communications, the TRA, the Ministry of Legal Affairs and the Ministry of Finance for their support and input. We're looking forward to making sure our mobile customers can continue enjoy the internet.'

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Global Cybersecurity and Cyber Resilience are Key to Growth and Innovation

> *Cyber risks extend far beyond the telecommunications and media sectors; industry in general, including other operators of critical infrastructure – is vulnerable to the various threats posed by malicious cyber actors.*

Internet and data driven services are the engines of the modern global economy. Consumers and businesses alike depend on the seamless integration and widespread availability of digital infrastructure for routine personal and commercial exchanges across several different platforms and devices, and increasingly across borders. As our global dependence on digital technologies continues to increase, leaders in governments and business must address cybersecurity concerns in order to build on the progress and prosperity that the digital economy has offered to date.

In a study published last year, 200 global CEOs identified cybersecurity as the top near-term threat to the global economy. These concerns come at a time when a greater share of the global economy, our infrastructure, and daily life is being transformed by digitization. For example, Cisco estimates that there will be over 28 billion networked devices by 2022 – over half of which will support various Internet of Things (IoT) applications. In order to usher in the next wave of growth and innovation, connected societies across the Middle East and North Africa (MENA) and around the world must take steps to ensure that sensitive information is protected from misuse, abuse, and destruction.

At AT&T, cybersecurity and cyber resilience are business imperatives. Our company provides customers around the world with connectivity, technology, entertainment, news, advertising and more in more than 220 countries and territories, including business enterprise services to countries representing over 99 percent of the world's economy. What's more, on an average day our global network carries over 335 petabytes of data traffic. Just as the continued growth of data creation around the world seems assured, so too does the constant

Ghazi Almihdar
Director – MEA External & Regulatory Affairs
AT&T

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evolution of the cyber threat landscape. Bad actors are finding ever-more creative and sophisticated ways to exploit digital information for financial or other gain; one recent survey suggests that global cost of cybercrime alone will reach $5.2 billion USD during a five-year window ending in 2023.

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In response to rising threats, we are using a suite of technology tools and best practices to safeguard our network, infrastructure, and customer data from malicious activity. For example, today we operate multiple Security Operations Centers (SOCs) that are monitored 24/7, 365 days of the year and provide advance notification of different security events in addition to reports and alerts. We are also preparing our infrastructure to better meet future threats. To that end, our adoption of Software Defined Network (SDN) and Network Function Virtualization (NFV) will make it possible to shift resources around in near real-time, quarantine data, or limit an attacker's access to resources. This gives us a more flexible, nimble and resilient response capability across our organization.

In addition to bolstering our internal practices, we place tremendous importance on advancing comprehensive cybersecurity solutions that help companies like ours remain globally competitive, protect intellectual property, and foster a safe digital ecosystem. Industry has a demonstrated history of engaging in effective, multi-stakeholder processes to develop best practices and standards – including on security – for ICT products and services. This model has been used to address challenges from botnets to supply chain security issues, and is today being applied to assess key technologies such as IoT and 5G.

This also necessarily requires that we cooperate with government partners around the world to develop effective and harmonized regulatory frameworks that expand – not restrict – the benefits of the digital economy, while also addressing the need for security. Today's open environment for digital media, communications, and trade has yielded tremendous benefits to the MENA region and the global economy, which are only expected to multiply as IoT and other emerging technologies such as 5G networks and Artificial Intelligence (AI) mature. Virtually every major global industry stands to benefit from these advances, and none is immune from cyber risk.

Cyber risks extend far beyond the telecommunications and media sectors; industry in general, including other operators of critical infrastructure – is vulnerable to the various threats posed by malicious cyber actors. Against this background, it is important that, as governments seek ways to improve security across the digital economy, they must preserve the ability of organizations that are on the frontlines to determine their unique risk profiles and calibrate their defense efforts accordingly. Prescriptive security practices or government mandates for security features could have the unintended consequence of making companies less agile and less able keep pace with more sophisticated threats. Even as we pursue greater public-private cooperation and global coordination on cybersecurity, leaders must prioritize using voluntary, risk-based approaches that reflect the unique needs of every industry.

No one company – or government – can secure the digital ecosystem alone. As a global leader in technology and innovation, we are proud to work with government and industry partners around the world to build a safe and secure digital ecosystem so that people across the MENA region, and globally, can thrive.

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SATELLITE NEWS

# FCC Approves $9.7 Billion Package to Speed C-Band Clearing

The U.S. Federal Communications Commission on Feb. 28 voted to auction a large portion of C-band in December under a plan that includes $9.7 billion in incentives to expedite relocating satellite operators out of the spectrum to make way for high-speed 5G networks. The agency's five commissioners voted three to two in favor of the plan, released three weeks ago, despite worries that the plan will trigger litigation from disaffected companies or a rebuke from Congress where lawmakers had sought to legislatively prescribe the auction rules. Central to the debate was whether the $9.7 billion in payments to encourage satellite operators to fully vacate the spectrum two years faster — in 2023 instead of 2025 — was appropriate, or legal. "Without a strong incentive for satellite operators to cooperate, it will take years longer to clear this spectrum, dramatically reducing the value of this spectrum opportunity to wireless bidders," FCC Chairman Ajit Pai said here. "It's like repainting your house before you sell it; yes, there are costs to doing that, but the costs are more than offset by the higher sales price." The FCC expects mobile network operators, like Verizon and T-Mobile, and other bidders to pay for satellite operator relocation costs and for the accelerated spectrum clearing. Those costs would be included in what bidders pay to access the spectrum when the FCC auctions it off in December, and are in addition to an estimated $3 billion to $5 billion or more of relocation costs — new satellites, ground stations, signal filters and signal compression technology — the FCC also expects them to cover. The FCC said Intelsat, SES, Eutelsat, Telesat and Embratel Star One, all of which demonstrated they have C-band customers in the U.S., as eligible for the accelerated clearing payments, which they would receive if they meet FCC clearing milestones that would free 280 megahertz of C-band by December 2023. Pai said he believes the FCC's "conservative approach" will benefit the U.S. treasury, which would keep the rest of the auction's projected $30 billion to $77 billion in total proceeds.

MIT Technology Review Names LEO Constellations among Breakthrough Tech

Low-Earth Orbit (LEO) satellite constellations were named among 10 Breakthrough Technologies for 2020 by MIT Technology Review in its March/April print issue. Other technologies named include Artificial Intelligence (AI) -designed molecules, hyper-personalized medicine, and quantum supremacy. In the explanation, Journalist Neel V. Patel highlighted reusable launch architecture and cheaper manufacturing as driving down the cost of launch, and the potential of LEO constellations to connect the world with internet access. Yet he also mentioned astronomers' concerns about interference, and the prospect of collisions in space. "[SpaceX's] Starlink's near-miss with a [European Space Agency] ESA weather satellite in September was a jolting reminder that the world is woefully unprepared to manage this much orbital traffic. What happens with these mega-constellations this decade will define the future of orbital space," Patel wrote.
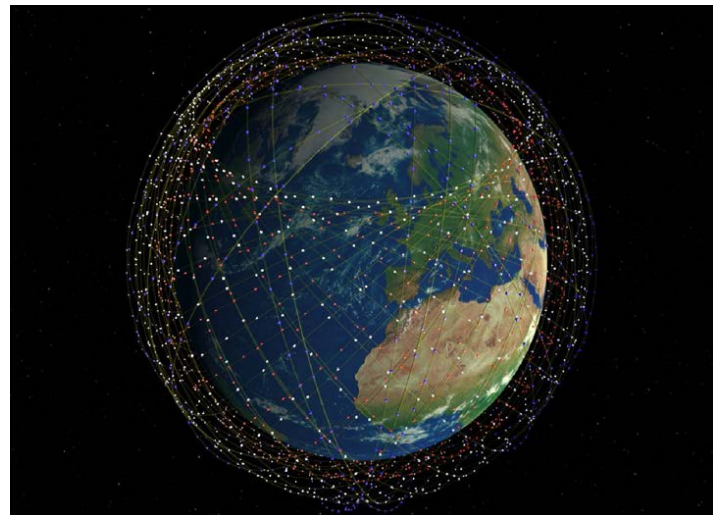
China to Complete Its Answer to GPS with Beidou Navigation Satellite Launches in March, May

China will launch Beidou navigation satellites in March and May this year, completing a constellation designed for an array of civil and military applications. A Long March 3B rocket arrived at the Xichang Satellite Launch Center Feb. 14, according to China News Service. The Beidou satellite for the launch has also arrived at Xichang, the report states. Both missions will launch single satellites to geosynchronous transfer orbits using enhanced hypergolic Long March 3B rockets. Xichang spaceport has implemented measures to counter the spread of the Covid-19 coronavirus, but has resumed launches following the Chinese New Year holiday. China announced plans for more than 40 launches this year ahead of the outbreak. The completed Beidou navigation satellite system consists of 27 satellites in medium Earth orbits, five in geostationary orbits and three in inclined GEO orbits. The orbits of the latter are designed to form two figure eight loops to provide optimized coverage to China and neighboring countries in the Asia-Pacific. Beidou navigation and positioning system (BDS) is used in sectors including public security, transportation, fishing, power, forestry, disaster reduction, the construction of smart cities, social governance and mass market applications. This system can also be used for emergency search and rescue. BDS also boosts the capabilities of the People's Liberation Army in areas including weapons targeting, guidance and other

services. Notably Beidou removes previous Chinese military reliance on U.S. GPS, which would be made unavailable in a conflict. The Beidou system has been constructed in three phases. The construction of BDS-1 to provide services to China was completed by 200. BDS-2, providing services to the Asia-Pacific region, was completed by 2012, while BDS-3 will be completed to provide global services in H1 2020. As with GPS and other navigation systems, Beidou also has requisite ground and user segments as well as the space segment.. The ground segment consists of

various ground stations, including master control stations, time synchronization and uplink stations and monitoring stations.¬ The user segment refers to receivers and processors that allow a system or device to make use of the signals transmitted by satellites. BDS features compatibility and interoperability with other navigation satellite systems. The Beidou is also features in the Belt and Road Initiative (BRI) mega-project. The system has become operational in Pakistan following rollout of ground stations, with the military opting to switch from GPS to Beidou services.

Thaicom 5 Satellite Ends Service

Thaicom Public Company Limited has announced the successful migration of its customers from the Thaicom 5 satellite to Thaicom 6 and other satellites. The Company has put in its best effort to resolving the technical anomaly in order to ensure the continuity of services to its customers. The migration and service restoration were completed on 20 February 2020. Meanwhile, the Company

completed the deorbiting of Thaicom 5 on 26 February 2020 at 4.52 p.m. (Local Time). On 17 December 2019, Thaicom 5 experienced a technical issue causing technical limitations to monitoring the status of the satellite. The Company has performed several unsuccessful attempts to recover the satellite's technical incident ever since the anomaly occurred, resulting in the satellite manufacturer's opinion to

deorbit the Thaicom 5 satellite. Thaicom 5 provided reliable satellite communication services for 14 years since its launched in May 2006. The Company would like to thank the Ministry of Digital Economy and Society (MDES) and the National Broadcasting and Telecommunications Commission (NBTC) for their prudent decision to support and approve of the relevant process.

Australian Launch Industry Looks to Government for Regulatory and Financial Support

Australia's nascent launch industry says it would like to see the country's government provide more financial and regulatory support to help it get established in the global market. In a panel discussion during the Ninth Australian Space Forum in Adelaide Feb. 18, leaders of launch vehicle companies and spaceport operators in the country emphasized the benefits of their industry in creating jobs and overall economic development, and that Australia was well-positioned to capture a share of the growing demand for satellite launches. "Australia is actually an excellent place for launch but also for investment more broadly, and launch in itself is a critical enabler of future growth economically in Australia," said Carley Scott, chief executive of Equatorial Launch Australia, which is setting up a launch site in the Northern Territory. Other panelists emphasized Australia's capabilities both in terms of available land to support launches but also its economic and political situation. "You need a geopolitically stable country and a large land mass," said Blake Nikolic, chief executive of Black Sky Aerospace, which provides launch vehicle, propulsion and related services. Australia is one of the few countries in the Southern Hemisphere that can offer both, he argued. To be successful, though, companies said they were looking for government support that parallels what is available in other countries. Adam Gilmour, chief executive of small launch vehicle developer Gilmour Space Technologies, said that while most of the customers for his company's vehicle are from outside Australia, his company can't compete for contracts from government agencies in some countries, like the United States, where they have to buy domestically. He called for a similar policy in Australia. "We can't compete for U.S. government launches because, in America, they have to use an American launcher to launch a U.S. government payload," he said. "We don't have that here, so that would really help." Gilmour also advocated for the Australian government to support development of launch infrastructure like spaceports, citing examples like the United States where both federal and state governments have invested in launch sites. Australia does have regulations for licensing commercial launches, but how they're applied can be an issue. Scott said she's run into issues involving environmental regulations for her launch site. "We needed to apply ourselves and our practice and align it to what the mining industry does," she said. "Not only is that a very heavy process, it also isn't fit for purpose." She and other panelists also said that launch licenses should allow vehicles to switch launch sites, or make minor modifications, without having to file for a new application. That has been an issue in the United States, where ongoing regulatory reform proposes to allow a single launch vehicle license be applicable from multiple launch sites. "That will save a lot of time and a lot headcount," said Gilmour. The speed of the regulatory process is another issue for launch operators, said Lloyd Damp, chief executive of Southern Launch, a company establishing a launch site in South Australia with South Korean small launch vehicle developer Perigee Aerospace as one customer. "It's not really for us so much the content of the approval process," he said, "it's about the timeliness so that Australia as a whole can do safe launch from our lands as well as reap the financial benefits that we as all Australians would like to see."

Astrocast Inks Sixth Cubesat Launch Deal With Spaceflight

Rideshare launch provider Spaceflight will send 10 additional nanosatellites into orbit for Internet of Things (IoT) network developer Astrocast in late 2021, the companies announced Feb. 6. The new contract represents Astrocast's sixth launch order from Spaceflight, which is now slated to launch 30 of the 100 planned satellites all in late 2021. "Access to space is the number one challenge for this industry. Astrocast is at an accelerated phase in company growth where it is critical to have experienced partners deploying our constellation," said Kjell Karlsen, CFO of Astrocast. "Spaceflight has proven to be a reliable partner from our very first launch. We couldn't ask for a better launch and mission management service." Astrocast is currently engaged in a partnership with the European Space Agency (ESA), Airbus, and Thuraya to develop an advanced nanosatellite IoT network powered by a constellation of 100 cubesats designed to transmit and receive low bandwidth (L-band) data from IoT devices around the world. The constellation, however, will target mobile networks operating in remote regions. The constellation will provide 256 bit encryption with multi-level security. Airbus helped Astrocast develop a low-cost Application-Specific Integrated Circuit (ASIC) and data-protocol that provides the most power efficient satellite modem for IoT applications.

Lockheed to Obtain Vector Satellite Assets

President of Iran's University of Science and Technology Jabbar Ali Zakeri said that the IUST has delivered the home-made Zafar satellite to the country's Space Agency (ISA) to be launched into the orbit soon. "Zafar satellite has been delivered to the ISA and the launch procedures are underway at the organization," Zakeri told FNA. He added that the satellite will be the first spacecraft which will be launched by Iran into the orbit in the next three months. Zakeri had told FNA in May that Zafar is designed by experts at research center of the university and it weighs 90 kilograms, is equipped with color cameras and can survey the oil reserves, mines, jungles, and natural disasters. Iran launched its first satellite, called Omid (Hope), in February 2009. The Rasad (Observation) satellite was also sent into orbit in June 2011. In February 2012, Iran successfully put its third domestically manufactured satellite, named the Navid (Promise), into orbit. On February 8, 2012, Iran received the first image sent by the Navid satellite. Earlier, Head of the Iranian Space Agency (ISA) Morteza Barari said that experts and scientists at the Tehran-based Amirkabir University of Technology will start the development project of a telecommunication satellite dubbed 'Payam 2' by late May. Barari said that three development plans for building Payam 2 are being reviewed and the production operation will commence within three weeks, once the best plan is selected. Building the device will take up to four years, he added. The move

comes after an earlier version of the satellite, dubbed Payam, was successfully launched into space in January, but the technical problems that occurred during the final stage of the launch prevented the spacecraft from reaching orbit. Following the incident, Minister of Communications and Information Technology Mohammad Javad Azari Jahromi said that Iran failed to orbit Payam satellite successfully. The rocket carrying the Payam satellite failed to reach the "necessary speed" in the third stage of its launch, Azari Jahromi said at the time. According to him, the rocket had successfully passed its first and second stages before developing problems in the third. He did not elaborate on what caused the rocket failure. President of Amir Kabir University of Technology Seyed Ahmad Motamedi underlined in February Iran's capability to orbit high-quality satellites in an altitude 500km above the Earth. "We are able to send satellites to the 500-km altitude and we can design satellites based on international standards," Motamedi

said. Iran is one of the 9 superior states in building satellites beside the US, Russia, Europe and Canada. Barari had announced in December 2018 that Iran was planning to manufacture a home-made telecommunication satellite in the next few years. "Building an indigenized telecommunication satellite within the next 7 years is atop the ISA's plans," Barari said. He added that the preliminary steps had already been taken by Iran to manufacture a telecommunication satellite by building Nahid 1 and Nahid 2 satellites. Barari underlined that Iran also planned to build a sensing satellite with a 1-meter precision power in 7 years. Barari had also announced in October 2018 that his country was standing among the 9 top world countries in developing satellites. He also added that Iran ranked first in the region in the aerospace sector, explaining that Iran ranked 14th in the world in 2016 but it jumped three grades and ranked 11th in the world in 2017.
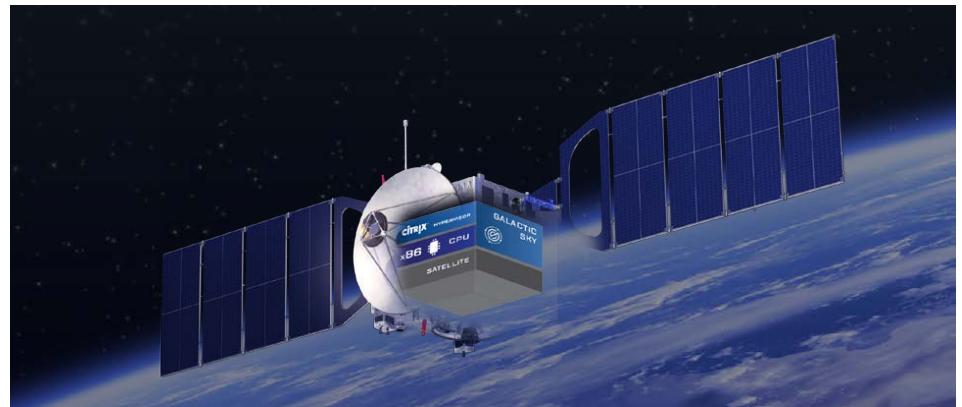
Investor Urges Intelsat to Reject FCC Spectrum Offer

A major investor in satellite service provider Intelsat pressed the company to reject a proposal from US regulators offering billions of dollars in exchange for access to its spectrum, arguing the terms are unfair and expose it to financial risk. A plan recently unveiled by FCC Chairman Ajit Pai would offer satellite service providers up to $9.7 billion in incentives to swiftly free up C-Band spectrum (3.7GHz to 4.2GHz) so the airwaves can be used for 5G. Intelsat stands to receive as much as

$4.85 billion if it successfully meets the transition requirements. But in a letter to Intelsat's board, Appaloosa Management President David Tepper derided the sum as "an affront when compared to the values achieved in auctions of comparable spectrum across the globe over the past decade". The company owns a 7.4 per cent stake in Intelsat. Tepper also took issue with the proposed process for distributing incentive and reimbursement funds, arguing it requires satellite companies to "front

billions of dollars of expenditures" in 2020 without the prospect of payment until May 2021. He said taking on that risk "could easily trigger an insolvency before relocation can be accomplished". He pressed Intelsat to negotiate "fair commercial terms" with the FCC. If it cannot do so, he said the company "has no choice but to resort to bankruptcy and litigation" to protect its spectrum assets. The FCC is scheduled to vote on the plan at its next monthly meeting, scheduled for 28 February.

Lightweight Satcube Ku First Satellite Terminal Fully Operational on Intelsat FlexMove New High-Speed Managed Service

Satcube, a disruptive development company in the satellite communications

arena that manufactures innovative, lightweight terminals, announced it has launched the lightweight Satcube Ku satellite terminal on Intelsat's new FlexMove service, providing broadband connectivity to Satcube users in nearly 190 countries. Satcube Ku is the first satellite terminal fully operational for Intelsat FlexMove Comms on the Pause (COTP) applications. Intelsat's first-of-its-kind "FlexMove", end-terminal managed service including the Satcube Ku, offers affordable connectivity that is 20 times faster than current Land Mobile satellite solutions on the market. The partnership enables on-the-spot portable broadband access and

an outstanding service offering based on Intelsat EpicNG satellites for Satcube users around the globe, in addition to a new market opportunity for solutions providers and resellers. At only 8 kilos, Satcube's compact terminal provides portable connectivity, featuring an intuitive user interface with assisted pointing function to enable satellite broadband access in 60 seconds in the most remote locations. The Satcube Ku is a perfect match for Intelsat FlexMove COTP (Comms-on-the-Pause) services designed for temporary use in fixed locations. Satcube Ku terminal is not vertical-specific, complementing the entire Intelsat portfolio.

China's First Low-Orbit Broadband Communication Satellite Conducts Successful Test

China's first low-orbit broadband communication satellite with 10 Gbps bandwidth, made by commercial aerospace company GalaxySpace, conducted a successful communication test after 30 days in orbit. The satellite is a key component of the global communication system to achieve global network coverage in the 5G or even 6G era, according to

a report from GalaxySpace sent to the Global Times. With a wide service area and capability of not being affected by the geographical environment of the Earth's surface, the low-orbit broadband communication satellite is able to provide stable and high-speed signals in remote areas and enclosed spaces like bullet trains where connectivity is difficult. The satellite

has been in good condition in orbit, with its onboard software, integrated electronics system and control system operating normally. The low-orbit satellite was sent into space on January 16 from Jiuquan Satellite Launch Center in North China's Inner Mongolia Autonomous Region. A series of tests carried out by the company on its first low-orbit satellite will become the basis for iteration and optimization of subsequent satellite design, which will be more conducive to mass production and reduce the cost of the satellite. It is hoped that product finalization can be realized and small batch production can be carried out when the second and third satellites are launched, said Chang Ming, a company spokesperson. Chang said that the company aims to contribute to China's space network as the US is in the rapid construction and deployment phase of its space network by launching low-orbit broadband communication satellites. SpaceX, as a US-based representative, is accelerating its plan of building a satellite constellation of nearly 42,000 low-orbit broadband communication satellites.

Arianespace Launches Satellites for Sky Perfect JSAT, Korea Aerospace Research Institute

Arianespace successfully launched a dual-satellite Ariane 5 mission from Ariane Launch Complex No. 3 (ELA 3) French Guiana on Tuesday. The mission placed JCSAT-17 for the Japanese operator Sky Perfect JSAT Corporation, and GEO-KOMPSAT-2B for Korea Aerospace Research Institute (KARI) into Geostationary Orbit (GEO). It was Arianespace's third mission of the year. JCSAT-17 separated 27 minutes after liftoff and followed GEO-KOMPSAT-2B separated four minutes later. JCSAT-17, built by Lockheed Martin, is the 21st SKY Perfect JSAT satellite to be launched by Arianespace. This geostationary communications satellite will deliver flexible, high-bandwidth communications to users in Japan and the surrounding region. GEO-KOMPSAT-2B will be KARI's second satellite as a manufacturer – and its third as a client – to be launched by Arianespace. It is part of a Korean government program to develop and operate two civilian geostationary satellites. This one will monitor Earth's environment and the ocean. It's predecessor, GEO-KOMPSAT-2A, which focuses on for meteorological and space weather monitoring, was launched by Arianespace in December 2018. GEO-KOMPSAT-2B carries two main payloads:

Geostationary Ocean Color Imager II (GOCI II), provided by Airbus Defence and Space; and the Geostationary Environment Monitoring Spectrometer (GEMS), provided by Ball Aerospace & Technologies.

Panasonic Avionics and Nelco LTD Turn on Satellite Communications Services for Aviation Over India

Panasonic Avionics Corporation has announced an agreement with Nelco Limited to provide satellite connectivity services to customers flying into India and over Indian airspace. With this agreement, Panasonic becomes the first satellite communications provider to begin inflight connectivity (IFC) operations under Nelco's Department of Telecommunications license for In-Flight and Maritime Connectivity (IFMC), in accordance with the Flight and Maritime Rules. As a result of this agreement, Panasonic, and its subsidiary ITC Global, now offer connectivity to both aircraft and maritime vessels operating within India. According to Ken Sain, Chief Executive Officer of Panasonic Avionics Corporation: "Becoming the first satellite communications provider to offer services over India is a major milestone for Panasonic. We are delighted to be partnering with Nelco, and are proud to offer our valued customers the ability to change the way people stay connected in flight, at sea and in remote locations around the world." With the implementation of the agreement and subject to regulatory approvals from relevant authorities, Indian full-service carrier Vistara may become the first airline in the country to offer satellite connectivity on international flights. Commenting on the occasion, Mr. Vinod Kannan, Chief Commercial Officer, Vistara, said: "As Vistara inches closer to launching long-haul international operations and becomes a global brand, our steadfast effort is to provide a truly world-class service to our customers to and from India. Our partnership with Panasonic in providing a state-of-the-art IFE system and satellite connectivity is a step in that direction, and we are confident that it will further elevate the five-star flying experience that Vistara is renowned for." With equipment already installed on more than 2,500 aircraft, vessels, and other platforms, Panasonic and ITC Global are already delivering connectivity services to customers in the aviation and maritime markets, providing them with access to satellite-based high-quality broadband internet services over India.

SpaceX Sends 60 Starlink Broadband Satellites into a Different Orbit

SpaceX launched 60 more satellites for its Starlink internet broadband constellation on a Falcon 9 rocket, bringing the total count to 300. Liftoff from Cape Canaveral Air Force Station in Florida came at 10:05 a.m. ET (7:05 a.m. PT). This Falcon's first-stage booster had been used three times before over the course of nine months, but missed making its fourth at-sea landing. If successful, it would have been SpaceX's 50th booster landing. SpaceX also said it would try to recover the rocket's nose cone at sea. The stack of flat-panel satellites, each weighing about 570 pounds, was deployed into an elliptical orbit about 15 minutes after launch. That's different from past practice, which involved deployment into a circular orbit about an hour after liftoff. After an initial checkout, the satellites will use ion thrusters to raise their orbits to the operational altitude of 342 miles (550 kilometers). SpaceX plans

to start limited internet service later this year. Over the longer term, the company is aiming to operate thousands of Starlink spacecraft — which are manufactured at its facility in Redmond, Wash. The prospect

of having so many satellites in low Earth orbit has already sparked concerns about space traffic jams and interference with astronomical observations.

Maxar Technologies to Build Geostationary Communications Satellite

Intelsat has selected Maxar Technologies, a trusted partner and innovator in Earth Intelligence and Space Infrastructure, to manufacture Intelsat 40e, a next-generation geostationary communications satellite scheduled to launch in 2022. Maxar will integrate NASA's Tropospheric Emissions: Monitoring of Pollution (TEMPO) payload with the Intelsat 40e satellite. "When it's launched, Intelsat 40e will be the newest addition to our next-generation Intelsat Epic platform, which is already providing our global customers with flexible, high-performance connectivity they can count on today — and in the future," said Intelsat CEO Stephen Spengler. "Intelsat continuously invests in innovative new satellite and hybrid technologies that make it easy and affordable for our customers to connect people, devices and networks, even in the most remote locations. We look forward to partnering with Maxar on this next build." Based on Maxar's proven 1300-class

satellite platform and Intelsat Epic, Intelsat 40e will provide Intelsat customers across North and Central America with flexible, high-throughput, "coast-to-coast" coverage. The additional capacity will also support the growing number of customers utilizing Intelsat managed-service offerings, including those working with Intelsat to solve connectivity challenges for commercial and private planes, moving vehicles on land and other mobility applications. In 2019, NASA selected Maxar to host its TEMPO payload utilizing the Space and Missile Systems Center Hosted Payload Solutions (HoPS) contract vehicle. Now that Maxar has identified Intelsat 40e as the satellite, the company will begin the integration process. TEMPO is a UV-visible spectrometer that will detect pollutants by measuring sunlight reflected and scattered from the Earth's surface and atmosphere. The resulting data from TEMPO will be used to enhance air-quality forecasts in North America, enabling the

more effective early public warning of pollution incidents. The combined Intelsat 40e and TEMPO programs are expected to be accretive to Maxar's earnings and cash flow on an annual basis throughout the production process. "Maxar and Intelsat have a strategic partnership that goes back more than 40 years, and we are honored to have been chosen for Intelsat 40e — the 54th satellite that Maxar will build for Intelsat over the course of our long and successful history together," said Maxar CEO Dan Jablonsky. "Maxar is also honored to have collaborated with NASA for more than 50 years, and we are excited to leverage our strong legacy in bridging commercial and government needs to integrate the agency's TEMPO payload with Intelsat 40e. Maxar's recent work with NASA on TEMPO and several other Space Infrastructure missions demonstrate positive momentum for our expanding civil space portfolio."

Astrocast Inks Sixth Cubesat Launch Deal With Spaceflight

Rideshare launch provider Spaceflight will send 10 additional nanosatellites into orbit for Internet of Things (IoT) network developer Astrocast in late 2021, the companies announced Feb. 6. The new contract represents Astrocast's sixth launch order from Spaceflight, which is now slated to launch 30 of the 100 planned satellites all in late 2021. "Access to space is the number one challenge for this industry. Astrocast is at an accelerated phase in company growth where it is critical

to have experienced partners deploying our constellation," said Kjell Karlsen, CFO of Astrocast. "Spaceflight has proven to be a reliable partner from our very first launch. We couldn't ask for a better launch and mission management service." Astrocast is currently engaged in a partnership with the European Space Agency (ESA), Airbus, and Thuraya to develop an advanced nanosatellite IoT network powered by a constellation of 100 cubesats designed to transmit and receive low bandwidth

(L-band) data from IoT devices around the world. The constellation, however, will target mobile networks operating in remote regions. The constellation will provide 256 bit encryption with multi-level security. Airbus helped Astrocast develop a low-cost Application-Specific Integrated Circuit (ASIC) and data-protocol that provides the most power efficient satellite modem for IoT applications.

SpaceX Tests Falcon 9 Rocket for Next Starlink Satellite Fleet Launch

SpaceX successfully fired up the Falcon 9 rocket booster that will launch the company's next batch of Starlink satellites in a test that sets the stage for the liftoff. That Falcon 9 rocket is expected to send 60 Starlink internet satellites into space no earlier than Sunday (Feb. 16). Liftoff is set for Sunday at 10:25 a.m. EST (1525 GMT). The company originally planned for a launch on Saturday (Feb. 15), but poor weather at the rocket's recovery zone prompted the 24-hour schedule slip. The company conducted a so-called static-fire test on Friday (Feb. 14) at 9 a.m. EST (1400 GMT) of a Falcon 9 rocket at Space Launch Complex 40 at Cape Canaveral Air Force Station in Florida, the company said on Twitter. The upcoming launch will mark the third Starlink flight this year. The veteran Falcon 9 rocket rolled out of its hangar on February 13 and went vertical on the launch pad in advance of the planned test-firing of its nine first stage engines on Friday morning. The two-stage rocket featured in the upcoming launch includes a thrice-flown first-stage booster, having previously lofted two commercial Dragon resupply missions (CRS-17 in May 2019 and CRS-18 that July) as well as a hefty telecommunications satellite in December. This test was slightly different from typical hold down tests that SpaceX performs prior to each launch in recent years. SpaceX test fired this Falcon 9 with a payload attached. Typically, the company

rolls out just the rocket's first stage, fires it up, and rolls it back so they can attach the payload. SpaceX has followed that method since 2016, when a Falcon 9 rocket exploded on the launchpad, destroying its satellite payload, during preparations for a static fire test. However, with the Starlink launches, the company has decided to fire up the rockets with the payload sitting on top. This isn't a new practice for this launch, but is something the company is doing with most of its Starlink launches. Since SpaceX owns the payload, it assumes the risk if there were an anomaly. Plus, it cuts down on processing time, allowing the company to test fire one day and launch the next. This practice was something SpaceX did in the past, but stopped after the loss of the AMOS 6 satellite in 2016. That explosion was attributed to issues with the composite overwrapped pressure vessels (COPVs) in the rocket's upper stage. The COPVs are responsible for keeping the rocket pressurized during flight as its fuel is depleted since then, the company has redesigned the COPVs and began using them when they started flying the Block 5 version of Falcon 9 in May 2018. In a prelaunch news conference prior to that inaugural launch, SpaceX CEO and founder, Elon Musk, described the COPVs as "the most advanced pressure vessel developed by humanity." NASA required SpaceX to fly the newly redesigned pressure vessels at least seven times before the company

could begin carrying astronauts to the space station — a task they completed last year. With one successful uncrewed test flight, and a demonstration of the Crew Dragon's launch escape system, the only hurdles SpaceX has left to complete before that coveted crewed mission are a few more parachute tests and paperwork. According to SpaceX, the Crew Dragon vehicle has arrived at the launch site. If all goes as planned we could see SpaceX launch people to the International Space Station in the next few months. This marks the fourth time a SpaceX booster will fly four times. But before it can launch, SpaceX put the vehicle through a routine launch rehearsal, called a static-fire test. This is a standard part of prelaunch procedures and one of the last major milestones before liftoff. During the test, teams loaded the Falcon's super-chilled propellants — kerosene and liquid oxygen — into the rocket and then briefly ignited the first stage's nine Merlin 1D engines. The engines briefly fired at 12 p.m. EST (1700 GMT), generating more than 1 million pounds of thrust while the booster remained firmly on the ground. "Static fire of Falcon 9 complete ahead of launching 60 satellites — due to poor weather in the recovery area tomorrow, now targeting launch on Sunday, February 16 at 10:25 a.m. EST, 15:25 UTC," SpaceX tweeted shortly after the test.

Indonesia to Commence Satellite Project for Nationwide Internet Coverage

The Indonesian government has appointed a consortium of local companies to operate a broadband telecommunication satellite that will provide comprehensive internet access across the vast archipelago. Communication and Information Technology Minister Johnny G. Plate said on Wednesday the financial agreement would be concluded next month to allow the consortium to commence the project immediately. The project to build and launch the Satelit Republik Indonesia, or Satria, will be led by the Pasifik Satelit Nusantara (PSN) consortium, which comprises the companies Pintar Nusantara Sejahtera, Pasifik Satelit Nusantara, Dian Semesta Sentosa and Nusantara Satelit Sejahtera. "We expect the Satria satellite to go to the launch pad in the fourth quarter of 2022," Johnny said in a hearing with the House of Representatives' Commission I which oversees defense and foreign affairs. Johnny said the financing of the project will involve several countries. The consortium has appointed France-based Thales Alenia Space to design and manufacture the satellite. According to Thales' website, Satria will be a Very High Throughput (VHTS) satellite with a design based on Thales' Spacebus NEO full electric platform and fitted with a fifth-generation digital processor (5G). Thales will also build two satellite control centers (main and backup), the telecommand and telemetry stations, and the ground mission segment. In addition, Thales will put in place a complete training program for PSN engineers. Some of them will join the project team in Cannes and Toulouse during the built. Satria will use a Falcon 9 rocket supplied by SpaceX to bring it into its orbit at 146°E for a 15-year lifetime. Satria will have a data-transfer rate of more than 150 gigabytes per second and will be used to expand internet access to Indonesia's remote areas. The satellite will connect more than 150,000 data transmitters across the country to support a new digital system for education, health services, government administration and defense.

Satcoms to Support Foreign Aid Projects in Africa

The Belgian development agency Enabel has partnered with SES, a supplier of global content connectivity solutions, to connect foreign aid projects in Africa via satellite. Enabel and SES will deliver satellite-based communications for development and foreign aid projects spearheaded by Belgian and other European governments. Under the multi-year framework contract awarded following a public tender, SES aims to bring managed end-to-end connectivity infrastructure and services to over 130 sites to support Enabel and development projects in 20 countries across Africa. The end-to-end connectivity solution delivered by SES will be supporting Enabel in its goal of providing partners with the right digital solutions and the latest technologies. The connectivity will power Enabel's projects and activities, further reinforcing the agency's commitment to the Digital for Development policy (D4D) of the Belgian Development Cooperation and of the European Commission, the Principles for Digital Development (a set of guidelines intended to help practitioners succeed in applying digital technologies to development programs), and the UN Sustainable Development Goals. As part of the solution, SES will provide antennae, installation, satellite bandwidth and end-to-end services to allow Enabel and its partners to upgrade the skills of African professionals, elevate the healthcare system and improve people's living conditions.

OneWeb Readies Internet Satellites for Launch

OneWeb, the heavily funded startup that's setting out to create a constellation of micro satellites to deliver broadband from space, is finally gearing up for the first in a series of regular monthly launches throughout 2020 and beyond. The London-based company, which was founded in 2012, is one of a number of organizations battling to commercialize low Earth orbit (LEO) through delivering fiber-like high-speed internet from more than 600 satellites. While the infrastructure helps telecom and internet companies extend their coverage to areas that are otherwise hard to reach, it also ensures always-on coverage during natural disasters and will enable new technologies that are coming to the fore. OneWeb launched 6 micro-satellites last February as it sought "first mover advantage," with that initial foray laying the foundations for its first proper launches, which were originally scheduled for December. The self-imposed deadline later slipped to mid-to-late-January, but now the company has confirmed the big day for early February. At 21:42 (GMT) on February 6, OneWeb will launch 34 satellites into orbit from Baikonur Cosmodrome in Kazakhstan, ushering in what it calls one of the "largest civilian satellite launch campaigns in history." All the satellites are manufactured by OneWeb Satellites, a joint venture between OneWeb and Airbus Defence and Space, and plans are in place to push 648 satellites into space by 2021. This number could increase significantly, though, if an application to the U.S. Federal Communications Commission (FCC) proves fruitful. OneWeb has already given a glimpse into the kinds of services its infrastructure will enable. Back in September, it revealed that its first commercial service will be aimed at the Arctic region. When it becomes operational, OneWeb promises 375Gbps of capacity for all areas lying above the 60th parallel north, a circle of latitude 60 degrees north of the Equator that spans North America, Europe, and Asia. Building this infrastructure is a costly endeavor, which is why OneWeb has raised north of $3 billion over the past seven years from big-name entities including SoftBank, Qualcomm, Grupo Salinas, and the Rwandan government. Elon Musk's SpaceX is also operating in this realm, and just yesterday it launched its fourth tranche of rockets into orbit following its initial batch last May, and now claims some 240 Starlink satellites in space. Elsewhere, Amazon too is planning a network of low-orbit satellites, though it hasn't yet announced a timescale, and Apple is reportedly in the early stages of a similar program. OneWeb said that it's planning its first demos by the end of 2020, with full commercial services expected to commence globally in 2021.

OneWeb Partners Kazakhstan's AIFC for Expansion in Central Asia

OneWeb, the global communications company, whose goal is to connect everyone everywhere, has announced that it signed a Memorandum of Understanding (MoU) with Astana International Financial Centre (AIFC), the largest financial hub in Central Asia, to accelerate broadband connectivity in Kazakhstan. The MoU marks the start of a partnership focused on achieving two important goals in Kazakhstan and Central Asia: providing the first low-latency satellite broadband in Kazakhstan and establishing a technical hub in the country to support OneWeb's communication service delivery across Central Asia. The MoU was signed by the Governor of AIFC Kairat Kelimbetov and OneWeb's CEO Adrian Steckel during the World Economic Forum in Davos, Switzerland where they discussed how OneWeb will enhance the implementation of a key government program called "Digital Kazakhstan" and other initiatives for greater collaboration between OneWeb and Kazakhstan. Digital Kazakhstan aims to provide high-speed broadband across Kazakhstan by 2022, boosting development of the country's economy and improving the quality of life of Kazakhstani citizens by means of digital technologies. As a part of this effort, Digital Kazakhstan seeks to expand the country's telecommunication networks and prioritizes providing broadband access by satellite in 6,600 rural and remote communities. OneWeb plans to engage local telecom operators among its distribution partners to provide its ubiquitous, high-speed, low-latency "fiber-like" broadband connectivity across the private and public sector, including businesses, schools, hospitals and civil services in Kazakhstan. A technical hub serving the greater Central Asia region will also be one of the projects under consideration, enabled by existing space communications infrastructure in Kazakhstan. OneWeb is considering setting up a joint venture in the jurisdiction of

AIFC to operate this Central Asia technical hub. OneWeb supports Kazakhstan's ambition to digitize its economy and become a pioneer of new satellite communications technologies, further developing Kazakhstan's reputation as an innovative country, especially in 'New Space' technology and adding momentum to its satellite communications sector. Adrian Steckel, CEO of OneWeb said: "I am very pleased that AIFC and OneWeb have become strategic partners and we see this as the foundation to build and evolve a wider partnership with Kazakhstan. The Government of Kazakhstan, like OneWeb, sees the importance of bridging the digital divide and enabling the digitization of its economy using innovative and modern satellite technology." Kairat Kelimbetov, Governor of AIFC said: "I am pleased to sign the MoU with OneWeb and AIFC is looking forward to bringing innovative projects to Kazakhstan by offering the best environment for setting up business and helping drive inward investment. This is the first step of many that will help to develop our economy." At the end of February 2019, OneWeb successfully launched its first batch of Low Earth Orbiting satellites. The next launch is scheduled for early February 2020 from the Baikonur Cosmodrome in Kazakhstan and this signals the beginning of regular launches of more than 30 satellites at a time to build OneWeb's first phase constellation of 650 satellites, to be followed by further phases to deliver additional capacity and meet customer demand.

OneWeb Launches another 34 Broadband Satellites

London-based start-up OneWeb has launched another 34 satellites into orbit as it races SpaceX to build the world's first high-speed, satellite-based broadband network. The OneWeb satellites launched from Kazakhstan on Thursday atop a Russian-made Soyuz rocket, CNN Business reported. Both SpaceX and OneWeb are developing their plans for satellite coverage. Last August OneWeb denied Russia had refused to allow it to deploy its satellite-based broadband service in that country. It said that it had submitted, but then withdrawn an application, to use radio frequencies in Russia. OneWeb, founded by US telecoms entrepreneur Greg Wyler and based in West London, plans to have its network in place by 2021. OneWeb launched the first six broadband satellites in February 2019 and it intends to build an initial network of 650 satellites around the world operating at 1,200km above the earth. It was helped in this expensive effort in March 2019, when OneWeb said it had raised a total of $3.4 billion (£2.63bn) in private funding. And now this week it has added to the six satellites already in orbit by delivering another 34 units. This launch is expected to be the first of 10 such launches that OneWeb will execute this year, the company's CEO, Adrian Steckel, told CNN Business. Each of the launches will carry at least 34 satellites, according to the company. Steckel reportedly said the firm's first six satellites had performed better than expected, and demonstrated speeds that could rival 5G internet. According to CNN Business, the firm has spent the past 11 months figuring out how to mass produce its satellites at its facility in Florida. Steckel reportedly said OneWeb and its manufacturing partner, Airbus, had to iron out issues in their production system and supply chain. But now that those issues are resolved, he estimates satellites will be rolling off assembly lines smoothly for the remainder of the year, and a second batch of more than 30 satellites will be ready for flight as soon as March. Meanwhile rival SpaceX is building its own constellation of internet satellites, which already includes more than 200 devices, and is expected to grow to more than 1,500 over the next 11 months. Unlike SpaceX which will offer broadband satellites services directly to consumers, OneWeb intends (once it opens for business in 2021) to sell services to governments and corporate customers that provide internet service to airplanes, ships and boats. Eventually, the company will sell bandwidth to consumer internet providers, said Steckel. SpaceX meanwhile aiming to start offering its broadband service as soon as mid-2020. The other companies racing to construct satellite-based broadband networks include Jeff Bezos' Blue Origin, which intends to deploy a 3,200-satellite network known as Project Kuiper. Other players include Kepler, LeoSat and Telesat Canada.

Comtech to Acquire Gilat Satellte Networks for USD 533 Million

Comtech Telecommunications has agreed to buy Gilat Satellite Networks in a deal worth USD 532.5 million. The purchase price will be paid 70 percent in cash and 30 percent in Comtech stock. The price of USD 10.25 per share is a 14 percent premium on Gilat's average share price over the past 90 days. Its shareholders will own around 16 percent of the merged group. Founded in 1987 with its headquarters in Israel, Gilat is active worldwide in satellite networking technology and services, including ground stations, in-flight connectivity and network infrastructure. The takeover is expected to help strengthen Comtech's position in the expanding satellite services market and its wider portfolio of wireless connectivity systems, while offering both companies opportunities for international expansion and cross-selling. On a pro forma basis, the merged group would have USD 926 million in sales and adjusted EBITDA of USD 130 million. The combined companies would employ approximately 3,000 people and serve a range of commercial and government customers around the world. Synergies from the deal are estimated at a conservative USD 2 million from ending Gilat's public company obligations. Comtech plans to maintain a dual listing on the Tel Aviv and Nasdaq exchanges as well as continue to use the Gilat brand name. Gilat will add to cash flow, and Comtech said it believes that with careful planning and execution, it can capitalize on opportunities to achieve both sales growth and further efficiencies during the second year post-closing. Comtech also announced the promotion of COO Michael Porcelain to president of the company. He will lead the integration of the companies following the takeover. Fred Kornberg will remain CEO of the group. Gilat's CFO Adi Sfadia will lead integration from his side, and CEO Yona Ovadi remains head of Gilat's HQ and research facilities in Israel. No facilities are planned to close as a result of the merger.

SES Networks Brings Connectivity to EU Fisheries Control Agency's Operations

SES Networks said the European Fisheries Control Agency is leveraging its satellite-enabled managed connectivity services to allow real-time data exchange between a lightweight Remotely Piloted Aircraft System (RPAS), EFCA's chartered vessel the Lundy Sentinel, and the headquarters on land to ensure timely decision-making. The managed connectivity platform delivered by SES Networks also enables high-performance connectivity to support daily operations aboard patrol vessels. The service is part of a framework agreement between SES Networks and the European Maritime Safety Agency (EMSA). The patrolling missions in the Mediterranean Sea, the western waters of the north-east Atlantic Ocean, North Sea and Baltic Sea see EFCA use the multipurpose vessel comprising a suite of EMSA products, such as pollution and oil spill monitoring and response, and a lightweight quadcopter RPAS. SES Networks' platform enables managed services ranging from RPAS real-time data transfer to internet broadband to video and voice applications. SES Networks also enabled other EMSA operations by providing managed satellite communications to support various European authorities, including recent missions in southern Europe, and environmental protection and fisheries control in Iceland.

FCC Offers Satellite Players Billions for C-Band

The US telecoms industry praised a new plan from Federal Communications Commission (FCC) chairman Ajit Pai offering satellite service providers up to $9.7 billion to rapidly free-up C-Band spectrum (3.7GHz to 4.2GHZ) for 5G. Pai's plan would repack satellite players into the upper 200MHz of the band, and license the lower 280MHz through an auction scheduled for December. In addition to reimbursing satellite companies for an expected $3 billion to $5 billion in relocation costs, the plan includes up to $9.7 billion in incentive payments for satellite incumbents which complete the move on an accelerated timeline. Specifically, the stimulus will be offered to those which clear 120MHZ of spectrum in 46 of the nation's top markets by September 2021, and the full 280MHz nationwide by September 2023. Though it didn't outright endorse the plan, a group of satellite service providers known as the C-Band Alliance (CBA) in a statement noted it represents a "significant development" in ongoing efforts to open the band for mobile use. Meredith Attwell Baker, president and CEO of industry association CTIA, issued a statement hailing the plan as a "critical step" in "securing our global leadership in the emerging 5G economy". Meanwhile, Verizon CEO Hans Vestberg praised Pai's "bold vision for bringing much needed mid-band spectrum to auction this year". But the plan wasn't without its critics. Michael Calabrese, director of the Wireless Future Project at New America's Open Technology Institute, called the scheme "disappointing", adding the incentive payments amount to an "excessive windfall" for non-domestic satellite companies, which will "come straight out of taxpayers' pockets". During a speech today (6 February), Pai defended the need for the financial stimulus, noting the frequency shift "will be much faster if we can create powerful incentives for incumbent operators to expedite the transition".

Two Northern Settlements in Krasnoyarsk Region to Enjoy Satellite Communication

Ust-Avam and Yessei settlements in the Krasnoyarsk Region, mostly inhabited by the North's low-numbered indigenous peoples, will be for the first time connected to satellite networks, the region's Minister for Digital Development Nikolai Raspopin told reporters. "This year, in August-September, satellite communication will be available in those settlements," he said. "We [also] plan to try providing access to the Internet. Clearly, downloading movies will be hardly possible, but at least messengers, sites [will be accessible]. Those settlements presently do not have any communication at all." Communication towers will appear near those settlements, the minister informed. In 2020, the region will build 18 communication towers for more than 30 settlements. "The North's settlements participate in a test program, and if we see it works, we shall carry on with it," the official stated. In 2019, the region's 38 settlements, where about 11,000 people live, received communication services. Ust-Avam is a settlement on Taimyr with a population of more than 300 people, mostly the Dolgans and Nganasans. Yessei is in the northern Evenkiysky District. The population is more than 600 people. They are mostly Yessei Yakuts.

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ARTICLE

Implications of 5G on Cybersecurity

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Telecommunications networks have laid the foundation for the technologies that the world depends on. Owing to their scale and criticality, mobile operators have become a major target for cyber-attacks. The data boom that accompanied 4G created vast amounts of valuable data for the telecommunications industry and the same can be expected at a much larger scale with the proliferation of new technologies like 5G and IoT. Specifically, 5G's network design brings about a number of upgrades to the network infrastructure that consequently implies network security challenges that require careful and effective mitigation.

1. Cybersecurity concerns posed by 5G
5G entails several infrastructural modifications to traditional telecoms networks that could pose increased security risks. The most critical security risks / concerns posed by 5G are as follows –

- **Move towards software defined networking:** which leads to a decentralization of core functions that were originally centralised and hence, well protected
- **Virtualization of network functions:** which can increase the risk of cyber-attacks because providing the same level of security as physical appliances will be difficult
- **Much larger scale:** with the expected large-scale proliferation of small cells and the number of connections (IoT-enabled devices running on 5G), the number of attack vectors for cyber-attacks will increase significantly
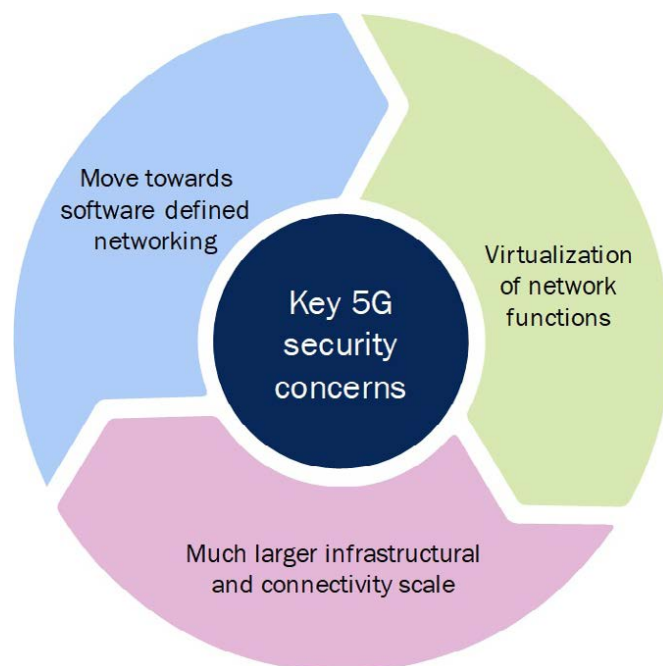
Figure 1: Key cybersecurity concerns posed by 5G
[Source: Analysys Mason]

Figure 2: Shift of sensitive functions from the core towards the edge due to 5G
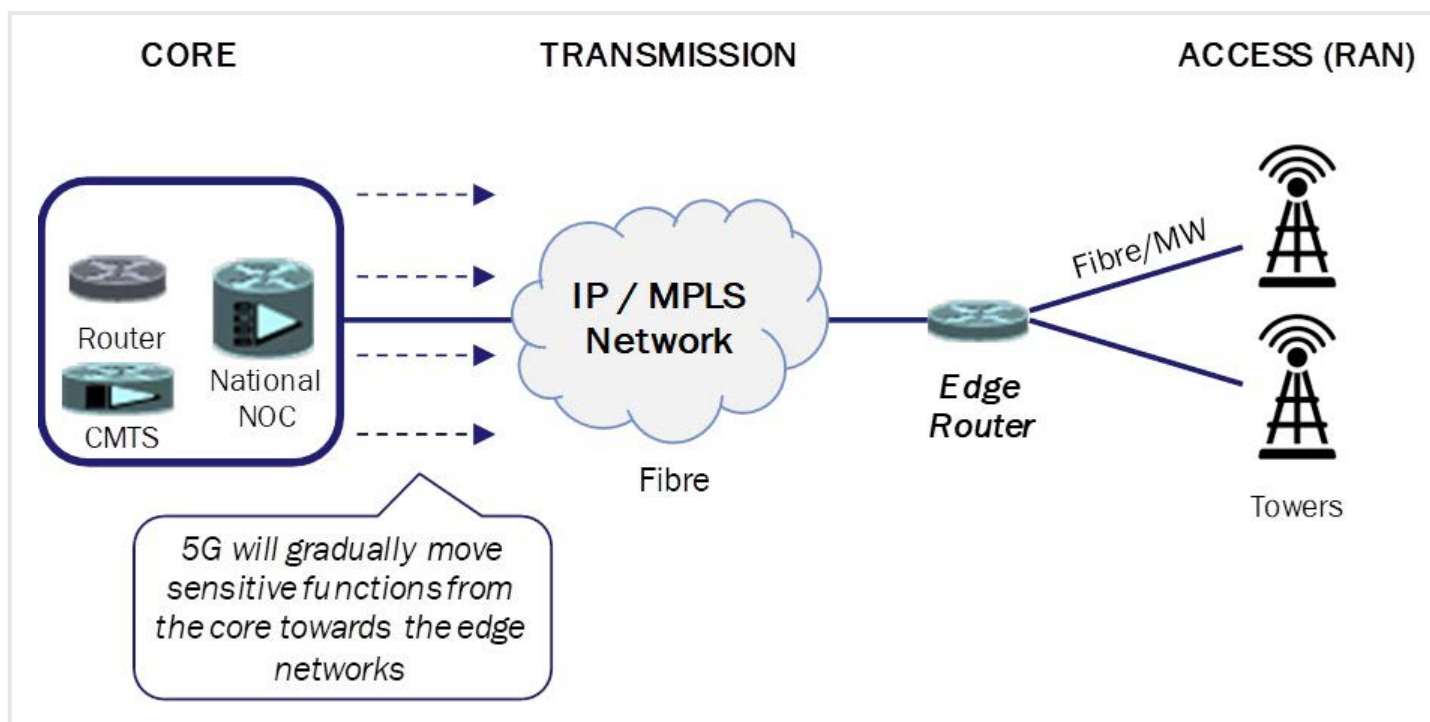[Source: Analysys Mason]

Among the security risks highlighted above, a key risk that needs to be elaborated on is that the distinction between core and edge networks is expected to diminish with the advent of 5G. Due to its network design, sensitive functions that are currently performed in the separated core are expected to gradually move closer to the edge of the network. This is believed to provide ways to circumvent traditional security controls affecting the overall network integrity, availability as well as the confidentiality of customer data.

2. Steps taken by global 5G leaders to address such concerns

In order to address these network security concerns, careful and effective risk mitigation is required. Governments and telecom regulators typically establish regulations on cybersecurity, however, only a handful of countries have taken notice of the increased security requirements of 5G and addressed the security gap. Australia, the United States and Germany are among the countries leading the charge to develop stricter cybersecurity regulations for 5G.

2.1 Australia

Australian Government
Department of Home Affairs

Owing to the increased security requirements of 5G, in August 2018, the Australian Government's Department of Home Affairs released regulations regarding cybersecurity titled 'Telecommunications Sector Security Reforms' (TSSR). The key elements of the regulation include:

- Service providers are to protect their networks and facilities from unauthorised access or interference to ensure their availability, integrity and confidentiality of communications
- Involvement of vendors deemed likely to be subject to extrajudicial directions from a non-Australian government seen as a risk to the protection of 5G networks
- Service providers to maintain competent supervision and effective control over networks including arrangements to maintain visibility of operations, data flow and locations
- Providers to notify the government of proposed changes to their networks and services that can compromise their ability to comply with the security

obligations
- Minister for Home Affairs to have the power to direct a service provider or intermediary to do (or not do) a specified thing that is reasonably necessary to protect networks and facilities from national security risks

2.2 Germany

Bundesnetzagentur

In October 2019, the German telecommunications regulator Bundesnetzagentur published a new draft catalogue with security requirements. It require providers of telecommunications services to prepare and implement appropriate security measures, with the objectives of protecting communications secrecy, preventing data breaches, preventing network and service interruptions and manage security risks.

While 5G and international security concerns might be the catalyst for these requirements, they will be applied across all networks

and communications infrastructure moving forward, as well as all vendors. The following security requirements are planned for the telecommunications networks:

- Systems to only be sourced from trustworthy suppliers who comply with national security regulations and provisions for the secrecy of telecommunications and data
- Network traffic to be monitored regularly for any abnormality and appropriate protection measures to be taken in case of a concern
- Only certified security-related network and system components to be used
- Only trained professionals to be employed in security-related areas and professionally competent, reliable and trustworthy contractors to be selected for system-related process outsourcing
- Adequate redundancy to be available for critical, security-related network and system components

2.3 United States of America

In July 2019, the US' Cybersecurity & Infrastructure Security Agency (CISA) released a Critical Infrastructure Security and Resilience Note pinpointing the security concerns that the agency identifies for 5G. The agency highlighted that the use of 5G components manufactured by untrusted companies could expose US entities to risks especially since the technology will use more components than previous generations of wireless networks.

The report suggested several measures the US Government could take to reduce the risks of deploying a 5G network including:

- Use of 5G network components manufactured by trusted companies since the proliferation of the technology's infrastructure may provide malicious actors more attack vectors
- Promoting open, transparent and consensus–driven international standards and processes that do not place trusted companies at a disadvantage
- Limiting the adoption of 5G equipment with known or suspected vulnerabilities
- Development of trusted 5G technologies, services, and products

2.4 Summary of the measures taken

There are several overlapping objectives and procedures that have been observed in the steps taken by the three countries. Each have clearly highlighted the underlying concerns and objectives of the new requirement including consumer protection, business protection and/or national security. Moreover, the areas of focus within these requirements include codes of conduct, monitoring obligations, choice of vendor/supplier, standards of equipment, staff and stakeholder measures and notification requirements.

The figure below highlights the commonalities in the approach taken by Australia, USA and Germany to address 5G cybersecurity concerns.

Country	Australia	USA	Germany
Codes of conduct	✔	✔	✔
Monitoring obligations	✔		✔
Choice of vendor/ supplier	✔	✔	✔
Standards of components and equipment	✔	✔	✔
Staff and stakeholder measures	✔	✔	✔
Notification requirement	✔		

Figure 3: Measures taken by the three countries for 5G cybersecurity

WHOLESALE NEWS

Mobile Roaming Between Congo and Gabon Working Well, Claim Regulators

The heads of Gabon's Regulatory Agency for Electronic Communications and Posts (l'Agence de Regulation des Communications Electroniques et des Postes, ARCEP) and the Republic of Congo's Regulatory Agency for Electronic Communications and Post (L'Agence de Regulation des Postes et des Communications Electroniques, ARPCE) have announced that free mobile roaming between the two countries, introduced on 1 January 2020, is working as planned, reports Adiac-congo.com. With the tax on international call termination now removed, the regulators have called on operators to introduce free data roaming between the two countries, as set out in the memorandum of understanding (MoU) signed in October last year.

EC Vetoes Swedish Fiber Market Decision

The EC has rejected a move by Sweden's Post and Telecom Agency (Post & Telestyrelsen, PTS) to implement a single national market regulation for wholesale local access to fiber-optic services. The PTS, which was the first regulator in Europe to define a separate market for fiber network regulation, says it will resume its market analysis in light of the EC's ruling. The EC statement says: 'Typically, fiber networks in Sweden do not overlap geographically; only limited numbers of larger apartment buildings are connected to more than one network. Prices for wholesale access are often different across the country, depending on the provider and other conditions such as density. There is no evidence of either demand or supply substitutability between operators. For these reasons, the Commission considers that competitive conditions are not sufficiently homogeneous across the entire country to conclude on one, national market.' Rikard Englund, head of market regulation at the PTS, commented: 'That the regulation has the right balance between competition and investment in high speed broadband is important for Sweden but also for the EU Commission and other EU countries. It is therefore positive that the issue will be carefully investigated in this context as well.'

Investors Buy Wholesale Fiber Company Deutsche Glasfaser for Close to $3B

Investment firms EQT Infrastructures and OMERS bought fiber-to-the-home company (FTTH) Deutsche Glasfaser from another investment company. According to Reuters, EQT and OMERS paid KKR about $2.74 billion plus debt for Deutsche Glasfaser. The deal, which is expected to close in the second half of this year, gives EQT a 51% stake in Deutsche Glasfaser, while OMERS has the remaining 49%. The two companies said that over the coming years they would invest more than $7 billion to roll out high-speed internet infrastructure in Germany. The German government has put a plan in place to provide nation-wide gigabit internet infrastructure across the country by 2025. In order to meet that goal, companies such as Deutsche Telekom and Vodafone have ramped up their fiber deployments efforts in rural, underserved areas of the country. Last month, Deutsche Telekom and Deutsche Glasfaser announced they would jointly use Glasfaser's fiber-optic network, starting with a pilot project in the city of Lüdinghausen. Deutsche Glasfaser, which was founded in 2011 by investor Reggeborgh, provides internet access to more than 600,000 homes and 5,000

businesses through its 30,000 kilometers of fiber. Last year EQT Infrastructure bought Inexio, and now plans to merge that company with Deutsche Glasfaser. "EQT has a long history of developing strong fiber companies and looks forward to leveraging this experience, and together with OMERS, contribute to the German government's plan to deliver nationwide gigabit Internet access by 2025, said Matthias Fackler, partner at EQT Partners, in a statement. "Deutsche Glasfaser and Inexio combined will play a vital role in enabling digital inclusion and sustainable economic growth." Last month Deutsche Telekom announced it had formed a joint venture with utility company EWE to build out a fiber infrastructure that will serve up to 1.5 million homes and businesses. The new fiber-joint venture is called Glasfaser Nordwest, and it will be headquartered in Oldenberg, Germany. The joint venture's goal is to bring fiber-to-the-home (FTTH) infrastructure to Lower Saxony, starting with 12 municipalities.

UK Government Warns – No More FREE EU Mobile Roaming from 2021, Maybe

In a somewhat unsurprising development the Government has again warned UK people that the current "guarantee of free mobile phone roaming" throughout the EU, Iceland, Liechtenstein and Norway "will end" on 1st January 2021, which marks the conclusion of the imminent 11 month Brexit transition period. At present citizens of the European Union benefit from free mobile roaming via the "Roam like At Home" regulation. As such anybody choosing to use their Mobile (SIM) to make calls, text or use data (mobile broadband) while roaming around the EU should be able to do so for the same price as they pay their UK operator (i.e. no extra roaming charges); although there are some caveats for data usage above a certain level. One obvious casualty of Brexit was thus always predicted to be free roaming, which could result in UK consumers once again having to face higher charges for using their mobile while travelling around the EU. So far we've seen nothing that would protect this agreement in the current Brexit deal, although it's entirely possible that the issue may yet come up as part of the future trade negotiations. Nevertheless for now the UK Government's official guidance seems to serve as more of a warning and the only protection is a legislated cap of £45 on roaming charges (first proposed in 2018), which fails to address the underlying issue.

Government Position on Mobile Roaming

• From 1 January 2021, the guarantee of free mobile phone roaming throughout the EU, Iceland, Liechtenstein and Norway will end.

• Check with your phone operator to find out about any roaming charges you might get from 1 January 2021.

• A new law means that you're protected from getting mobile data charges above £45 without you knowing.

• Once you reach £45, you need to opt in to spend more so that you can continue using the internet while you're abroad. Your phone operator will tell how you can do this.

On the other hand both Vodafone and Three UK have previously committed to retain free EU mobile roaming after Brexit (example), while EE (BT) has previously indicated that they too have "no plans" to change how they do things (one caveat when an operator says "no plans" is that such positions can change). Meanwhile it's unclear where O2 stands on all this but they'd probably have to follow what their rivals are doing or risk losing customers. Admittedly the issue here is that there would be nothing to stop some EU operators from raising their charges against UK providers. However EU operators would still have to be mindful that EU citizens visiting the UK might also face higher charges, unless existing agreements between operators are retained.

Meanwhile some operators, such as Vodafone, are extremely large pan-European companies and so will find it much easier to support free roaming than others, at least in the countries where they already have a presence.

UK Telcos are Potentially Helpless in the European Roaming Debate

Brexit is now a reality for the UK, and despite the telcos asserting their commitments to the roaming status quo, the financial burdens could become too great to swallow. With the January 31st deadline come and gone, the UK Government has started to warn its citizens of what Brexit actually means. Very little will change over the next 11 months, but come December 31st, the 'grace period' will have concluded and change will be a reality. New passports might have to be ordered, the European Health Insurance Card (EHIC) will no-longer be valid, an international driving permit (IDP) might have to be sought and the Government cannot guarantee you won't be charged a small fortune for cruising down the digital highways. While it might seem like another era, EU roaming regulations were only introduced in 2017. Some telcos had built 'roam like at home' features into tariffs already, but this was a market reaction to impending regulation. Until the EU started making a fuss, the telcos and the GSMA were more than happy to charge ludicrous amounts and attempt to justify them in a truly laughable manner. Using data when travelling to Europe has become almost second nature to UK consumers nowadays and few would want to return to the days of huddling around the wifi hotspots. The UK telcos have been keen to point out there are no intentions to return to the dark days of 'bill shock', but soon it might be out of their control. "At O2, we are committed to providing our customers with great connectivity and value when they travel outside the UK," an O2 spokesperson said. "We currently have no plans to change our roaming services across Europe. We will be working closely with the UK government to try to maintain the current

EU 'Roam like at home' arrangements once the UK leaves the EU." Vodafone and Three have also confirmed Brexit will not have an impact on EU roaming for their customers, while BT/EE are yet to provide comment. The issue which is at the heart of this debate is how much control the UK telcos actually have. As it stands, termination fees on international networks are strictly managed and limited by the European Commission. This will no-longer be the case for UK telcos come January 1st, 2021; European telcos will be free to charge whatever termination fees they see fit for their network. In the years passed since

the introduction of EU roaming rules, telcos have effectively seen reciprocal revenues for roaming, as it was simply a case of any individual is equal to any other on a different network, irrelevant of destination or origin. However, should some nations decide to raise the termination fees, the telcos will have to decide whether to absorb these costs or raise prices for consumers to compensate and maintain profitability. This is a 'doomsday' scenario, though we suspect it wouldn't take long for telcos to realize absorbing the cost in some areas is not feasible.

ARTICLE

The Surprising Way Telcos are Tapping into Global Mobile Gaming Market

As mobile gaming thrives, data gives gamers what they want: uninterrupted play

Thierry Siminger
Chief Commercial Officer
DT One

In January 2020, online gaming retail and distribution platform OffGamers partnered with DT One to provide customers with the option to buy mobile airtime and data and send it to friends and family around the world.

In 2016, the mobile game Pokemon Go went viral. The augmented reality game, involving training and capturing virtual creatures at physical locations, was downloaded by more than 500 million people within a year and since then more than 1 billion people have given the game a try.

In 2019, games like PlayerUnknown Battlegrounds (PUBG) Mobile, Call of Duty: Mobile, Fun Race 3D, and Game for Peace topped global charts with 100s of millions of unique players and app downloads. Many of these highly popular games are free to use, but players can choose from a variety of in-app purchases like gaming credits and data. Mobile gaming spend swelled to US$49 billion and is expected to hit US$56.6 billion by 2024.

Data is the fuel that drives mobile gaming
According to App Annie's The State of Mobile Games in 2019 and Beyond report, 33% of all mobile downloads and 10% of time spent on mobile are now games.

In January 2020, online gaming retail and distribution platform OffGamers partnered with DT One to provide customers with the option to buy mobile airtime and data and send it to friends and family around the world.

International mobile top-ups have proven surprisingly popular with customers who don't want their play interrupted. Multiplayer games often involve people playing the same game from very different

The telcos that offer valuable and convenient services like international airtime and data top-ups will be well-positioned to join the upward curve.

locations. If one of the players runs out of mobile data, they're out. Games like Fortnite and PUGB are data-hungry and can use between 40MB-100MB an hour.

Platforms like OffGamers are seeing customers buying international data top-ups for their friends to keep the game going, no matter whether they're in Saudi Arabia or Egypt. DT One, which operates the largest B2B network of more than 550 mobile operators across 160 countries, allows customers to buy airtime and data instantly in more than 100 currencies via partner platforms.

Mobile gaming is on the rise and isn't slowing down
The expected number of mobile gamers is expected to grow to 2.7 billion by 2021 and more than half of all global games are currently played on smartphones and tablets. As this number continues to rise, the demand for the mobile data that makes play possible is set to grow significantly too.

The telcos that offer valuable and convenient services like international airtime and data top-ups will be well-positioned to join the upward curve.

Number One B2B Digital Transfer network for mobile top-ups and data solutions

Keeping more people more connected, more often

DT One is a B2B business that was founded with the aim to provide mobile carriers with the infrastructure and services they need to help migrant workers stay in touch with their family and friends back home. Our smart technology and extensive global network enables our partners to scale their business globally, reach new markets and ultimately keep more people, more connected, more often.

Our Global Network

350 MILLION+ UNIQUE USERS

6.5 BILLION+ TRANSACTIONS COMPLETED

1000+ TELCO, DIGITAL & FINANCIAL PARTNERS

160+ COUNTRIES

Mobile Network Operators

Distributors & Retailers

Money Transfer Operators

Merchants & Corporates

YOUR BUSINESS

SINGLE ACCESS POINT

REACHING OVER 160+ COUNTRIES

DTone. smart. mobitech. solutions.

550+ MOBILE OPERATORS

OUR SOLUTIONS

Mobile Top-ups and Data Bundles
Enable users to send SMS, call and data top-ups worldwide

Mobile Rewards
Use top-up value as a reward to help drive brand loyalty and customer acquisition

P2P
Send data, call or text time from phone to phone.

www.DTone.com

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Thierry joined DT One in May 2017 as the Chief Commercial Officer to lead the company's global sales operations. Prior to DT One, he worked at SIGFOX where he held the position of Middle East, Africa President and EXCO member. Thierry also holds an MBA from ESACI, and is fluent in English, French, and Spanish.

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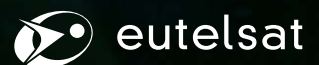
TECHNOLOGY NEWS

Optus Switches on Dual-Band 5G Production Network

Australian mobile network operator (MNO) Optus has successfully launched what it claims is the world's first 2300MHz and 3500MHz spectrum 5G dual-band production network, doing so in partnership with Ericsson and Samsung. In a press release the cellco confirmed that the dual-band network has been inaugurated in Sydney, with coverage to be extended to Melbourne 'in the coming weeks'. It was noted that the infrastructure was developed with Ericsson's 2300MHz and 3500MHz 5G Radio System equipment and has been tested using the new Samsung Galaxy S20 5G handset. With Optus suggesting the dual-band network has the potential to increase 5G capacity and coverage, Kent Wu, Optus Head of Network Access Planning and Quality, said of the matter: 'As we push ahead with the rollout of our 5G network we are also continuing to test and implement

new ways of enhancing our 5G network. Initial findings from our dual-band testing have shown that the use of these two spectrum bands delivered increased 5G capacity and coverage which if deployed will ultimately benefit our customers … Our 5G customers are already enjoying higher

average speeds, quicker time to download content and a consistent high definition video experience. The implementation of a dual-band 5G network will enhance these elements to ensure experiences are more reliable, particularly during peak usage times.'

Ericsson Advising Ukrainian Government on LTE-A, 5G Development

The Ministry of Digital Transformation of Ukraine has signed a memorandum of advisory support with Sweden's Ericsson for development of fixed and mobile 4G LTE-A and 5G networks, reports UkrInform. The Ministry noted that a joint working

group is being set up to work on technical expertise in mobile and fixed internet development and to provide advisory and information support to the Ministry on the evolution of mobile communications, frequency strategy and licensing policies.

The Ministry of Digital Transformation has also recently signed a memorandum of cooperation on 'digital literacy' with Ukraine's largest mobile operator by subscribers Kyivstar.

Vodafone Spain Makes Standalone 5G Call; 700MHz Auction Earmarked for May

Vodafone Spain has announced that it has staged what it claims is the 'first data call in Europe to a commercial smartphone using a 5G Standalone (SA) network'. The connection was made using the cellco's 5G SA pilot network and a Samsung Galaxy S20 Ultra 5G handset, which is scheduled for launch next month. TeleGeography notes that Vodafone

launched Non Standalone (NSA) services in 15 cities in June 2019. The network has subsequently been extended to Benidorm (30 January) and Badajoz (13 February). In other news, Nadia Calvino, Spain's Minister of Economic Affairs and Digital Transformation, has informed congress that the country is on target to stage its 700MHz 5G auction in May this year. The

694MHz-790MHz (700MHz) spectrum – referred to as the 'second digital dividend band' – is currently utilized for Digital Terrestrial Television (DTT) services but will be freed up by March 2020. As per EU policy, the band must be made available for mobile broadband use by 30 June 2020.

India's DoT Announces 5G Field Trials

Given everything else that the sector has been dealing with, the timing of India's Department of Telecommunications (DoT) announcement on 5G field trials is quite interesting. The DoT is aiming to get 5G field trials up and running in only a month's time. This apparently follows a meeting this week with operators and their potential vendor partners to discuss use cases and their preparedness. It seems, local press reports say, that operators and vendors gave a number of presentations on potential 5G use cases. Trial categories

such as health, education, agriculture and surveillance were on the agenda, as were the role of enhanced mobile broadband and fixed wireless access (FWA). Pending Wireless Planning and Coordination approval, DoT will allocate trial spectrum to operators, which will then choose vendor partners. Ericsson, Nokia, Huawei, and ZTE are in the frame for Vodafone Idea and Airtel. Reliance Jio has submitted an application for trial with Samsung, its 4G partner. State-run telco BSNL has submitted its application with ZTE. India's

5G trials have been rescheduled more than once, but, with 5G spectrum auctions planned to take place sometime between April and June, the need to get trials underway is beginning to look urgent. However, in the light of debt issues facing both Bharti Airtel and Vodafone Idea, it's hard to see where the massive investment required for 5G spectrum and rollout will come from. Indeed, in the case of Vodafone Idea, survival in the Indian market may be a more immediate concern than next generation network investment.

ETSI Launches New Group to Work on Fifth-Generation Fixed Networks

The European Telecommunications Standards Institute (ETSI) announced a new group, ETSI ISG F5G, that's dedicated to specifying the fifth generation of fixed networks. The ETSI ISG F5G group will look at how fiber connections can be enhanced as well as new opportunities that could turn the fiber-to-the-home (FTTH) paradigm into "Fiber to Everything Everywhere," according to the press release. The group will address aspects related to new optical distribution network (ODN) technologies, XG(S)-PON and Wi-Fi 6 enhancements, control plane and user plane separation, smart energy efficiency and end-to-end full-stack slicing, autonomous operation and management, and adaptation of the transport network, among other items. The kick-off meeting for the group took place on Feb. 20-21 at an ETSI facility and members of the group elected Dr. Luca Pesando, TIM, as the chairman of the ISG group. "I'm happy to be the chairman of this new ETSI

group. Fiber is one of the cornerstones of communication technologies, supporting fixed access and the interconnection between any other access networks. Defining its future developments to maintain this fundamental role through the overall evolution of communications is therefore essential," said Pesando, in a statement. The new group will start with five areas. The first, F5G use cases, include services to consumers and enterprises, which will be picked based on their impact in terms of new technical requirements that are identified. The second area, which is called landscape of F5G technology and standards, will study the technology requirements for F5G use cases, including gap analysis and taking a look at the existing technologies. The third area will look at defining fixed network generations and the path of fixed network evolution. It will include transport, access and on-premise networks. It will

also identify the principal characteristics demarcating different generations and define them. Fourth, the group will look at the architecture of F5G, which will specify the end-to-end network architectures, features and related network devices/elements' requirements for F5G, including on-premises, access, IP and transport networks. Finally, the group will focus on F5G quality of experience (QoE) factors for new broadband services. It will analyze the general factors that impact service performance and identify the relevant QoE dimensions for each service. Members of the group include: Association eG4U, Altice Portugal, BOUYGUES Telecom, BTC, Cadzow Communications, CAICT, CATT, China Unicom, China Telecommunications, CICT, ECO, Fraunhofer HHI, Futurewei, Huawei Technologies, JSPRC Kryptonite, POST Luxembourg, Rostelecom, TIM and Turk Telekomunikasyon.

# KDDI and Ericsson Claim 'Breakthrough' in 5G Core SA Software Deployment

Ericsson and Japanese communications service provider KDDI (au) have successfully demonstrated cloud-native Continuous Integration/Continuous Delivery (CI/CD) pipeline delivery for the latter's standalone (SA) 5G core network – claiming 'a breakthrough in delivering software features speedily and efficiently'. In a press release, the Swedish vendor said that its 'container-based technology enables automatic deployment of new software

and functionalities, while maintaining the high quality and availability of the 5G core network'. Ericsson went on to note that the pair have teamed up 'to create a cross-organizational end-to-end 5G CI/CD pipeline – moving from native to virtualized and cloud-native network functions. The pipeline seamlessly deploys software from Ericsson's product development units into KDDI's environment without human intervention.' The update follows the recent

announcement from KDDI that, working with Nokia, it has recently completed a 5G core SA network trial, moving it closer to being able to provide 5G-enabled services. The standalone trial used Nokia's 5G AirGile cloud-native core solution and was conducted 'entirely independently of previous generations' mobile network architecture'.

AIS Launches 5G Services in 2600MHz Band

Thai mobile operator AIS has launched a 5G service using frequencies in the 2600MHz band, after receiving its 2600MHz spectrum license on 21 February 2020. AIS chief consumer business officer Pratthana Leelapanang said that 4G subscribers using smartphones compatible with the band can immediately benefit from the 5G service, which offers a 400% improvement in download speed. AIS chief Somchai Lertsutiwong revealed that 'thousands' of AIS cell sites are currently compatible with the frequency band, though he highlighted that full 5G adoption requires collaboration from all related parties for ecosystem development: 'Real optimum benefits from 5G can be expected within one or two years. AIS invites vertical industries to collaborate to shape up the ecosystem and use cases.'

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AIS
5G
THE BEST NETWORK
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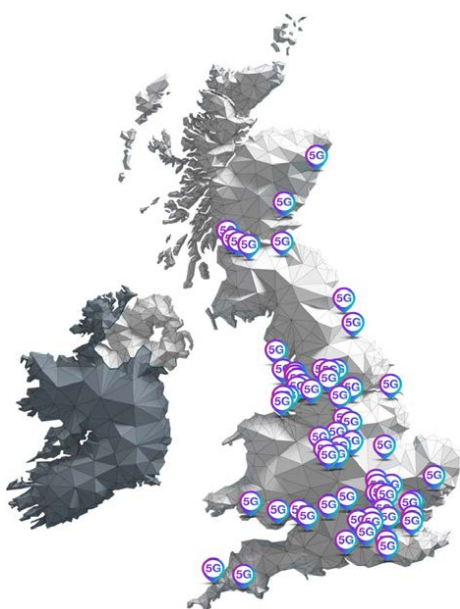
Three UK Confirms Mobile 5G Launch Plans

Having launched its '5G Home Broadband' service in August 2019, British mobile network operator (MNO) Three UK has now outlined its plans for the introduction of mobile 5G connectivity. In a press release regarding the matter the cellco confirmed its aim to launch a mobile 5G offering in 65 towns and cities – including Birmingham, Cardiff, Coventry, Glasgow, London, Manchester and Nottingham – 'from the end of February'. In announcing its mobile 5G launch plans, Three UK was keen to highlight the spectrum advantage it has over rival cellcos, noting that it is the only

operator able to meet the International Telecoms Union (ITU) 2020 standard for full 5G services, by having at least 100MHz of 5G-suitable spectrum. As such, the operator claimed it is 'set up to be the fastest 5G network in the country', and said it would provide peak mobile speeds up to two times faster than other providers due to its 'substantial' 5G spectrum holding. Meanwhile, Three UK also confirmed that all new and existing customers will have access to 5G with no speed caps and at no extra cost on all post-paid, pre-paid and SIM-only tariffs.

Safaricom Set For 5G Launch This Year

Safaricom, Kenya's largest mobile operator by subscribers, has completed testing and trials of 5G services, and plans to roll out a commercial network later this year.

Business Daily quotes the firm's Acting CEO Michael Joseph as saying that it will initially target major urban centers in select cities with the new 5G service. He added

that the launch will enable Safaricom to further expand its data business and counter slower growth in revenue from traditional voice services.

Nepal Telecom to Switch off CDMA Services by July 2021

Nepal Telecom (NT), Nepal's largest mobile network operator (MNO) by subscribers, has announced plans to switch off its CDMA service during the 2020-21 fiscal year and use the spectrum for 4G services, reports local news site My Republica citing NT's managing director, Dilli Ram Adhikari. The operator originally launched CDMA services in 2006 to provide limited mobility

services in Kathmandu and currently uses frequency in the 800MHz and 1900MHz bands. Nepal's Radio Frequency Policy Determination Committee (RFPDC) previously announced in April 2019 that CDMA networks will be shut down by 2022 in order to refarm the 800MHz spectrum band. The NTA awarded 2×10MHz of 800MHz spectrum to NT for 4G LTE in

February 2019 on the condition that the operator returns 6MHz of airwaves after the CDMA network shutdown. Meanwhile, NT has also announced that its 4G LTE service is now available in more than 2,000 locations across all the country's 77 districts, as part of an aggressive expansion program initiated last year.

eir Confirms Fiber Network Now Live in 28 Towns; 5G Available in 20 Towns and Cities

Irish communications provider eir has announced that its next generation gigabit-capable fiber network is now available in 28 towns across the country, claiming that more than 50,000 premises are already passed by the infrastructure. In a press release regarding the development, eir said the work represented 'the first part' of a EUR500 million (USD551 million) investment program, while adding that it expects the fiber rollout to 'ramp up considerably in the coming months'.

To that end, the operator is targeting a further 20 towns with fiber by April, while ultimately its project will see the technology cover some 1.4 million homes and businesses – equivalent to around 84% of the country total. Meanwhile, eir also took the opportunity to reveal that its 5G mobile network is now available in a total of 20 towns and cities nationwide, covering 'more than 25% of the population … out of doors'. In terms of future expectations for 5G coverage enhancements, the operator

plans to continue investing heavily this year with a view to reaching 'every major town' in the Republic. Further, it said the upgrade and expansion of its 4G coverage is continuing apace, with it reportedly having updated more than 500 sites to bring LTE-based connectivity to more than 98% of the population. Once the upgrade program is complete, eir expects to achieve 99% 4G geographical coverage, up from a present figure of 92%. In terms of specifics, eir's fiber network is now confirmed as being available in the following locations: Balbriggan, Balgriffin, Ballybunion, Barna, Boyle, Cahir, Carndonagh, Carrick-on-Shannon, Castletroy, Claremorris, Clonakilty, Collooney, Coolock, Dunshaughlin, Galway, Kilcock, Kilkenny, Kilrush, Letterkenny, Midleton, Moat, Nenagh, Portlaoise, Rathkeale, Ratoath, Rochestown, Santry and Tallaght. 5G coverage locations, meanwhile, blanket: Athlone, Bray, Carlow, Castlebar, Cork, Drogheda, Dublin, Dundalk, Ennis, Galway, Kilkenny, Killarney, Letterkenny, Limerick, Naas, Sligo, Tralee, Trim, Waterford and Wexford.

Orange Polska Claims 1.2Gbps 5G Speeds in Lublin Trial

Orange Polska has achieved download speeds of 1.2Gbps in trials of non-standalone (NSA) 5G technology in Lublin, Telepolis.pl writes. The operator claims that in 'ideal conditions', the theoretical capabilities of the network could exceed 1.5Gbps. The company also tested 5G inter site dual connectivity in Lublin. Orange's 5G tests utilizing the 3.4GHz-3.8GHz band began in Warsaw in September 2019, and have also been ongoing in Lublin since October 2019; all test installations – using equipment provided by Nokia – were connected to the operator's network by an optical link with a throughput of 10Gbps.

TPG Telecom, Rakuten Mobile team up for 5G OpenRAN Trial

Singapore's new fourth mobile operator TPG Telecom (Singapore) has selected Japanese counterpart Rakuten Mobile to help it run joint 5G OpenRAN trials on a new network in the city state. With the latter currently in the throes of building out its own 4G mobile network in Japan – often touted as the world's first end-to-end fully virtualized, cloud-native network – the OpenRAN collaboration reportedly aligns with Rakuten's open, multivendor network approach. Mobile World Live cites TPG Manager and Acting CEO Richard Tan as saying that the trial is designed to speed up the adoption of fifth-generation networks and SDN technology based on open interfaces and 'community-developed standards running on common hardware'. Meanwhile, Rakuten Mobile Chief Technology Officer Tareq Amin noted:

'The strategic partnership is a validation of Rakuten Mobile's strategy and we are happy to share our innovative end-to-end virtualization solutions built on our vision of an open and multivendor mobile network ecosystem', adding that Singapore's high fiber density makes it 'uniquely suited' for rapid OpenRAN adoption.

Ericsson Working on Plus 5G Rollout in Five Polish Cities

Polish cellco Polkomtel, which trades as Plus, has released more details on its 5G network rollout. It is working with Ericsson in five cities – Gdansk, Lodz, Poznan, Szczecin and Wroclaw – utilizing 2600MHz spectrum. Around 80 base stations are being deployed by the Swedish vendor using Non-Standalone (NSA) 5G technology. Plus has previously announced plans to launch 5G networks in seven cities by the end of this quarter, with additional coverage in Warsaw and Katowice on top of the five markets where it is working with Ericsson. Nokia has been named as its second equipment partner. MIMO 4×4 and QAM256 technologies will be used to provide download speeds in excess of 500Mbps via approximately 100 base stations across the seven cities at launch.

The Biggest Blindspot in Cybersecurity Today
The Link between Third-Parties, Connected Storage, & your Confidential Data

> *Today, over 90% of data breaches are opportunistic attacks versus cyber criminals setting out to target a particular company. Cyber criminals are out there scanning the entire internet looking for unprotected data and open servers. Cyber criminals are opportunistically going after this low hanging-data to find their next victim and paycheck.*

We've heard time and time again, "data is the oil of the digital era". Data has become a good that can be traded. Data drives innovation, drives efficiency, according to economists it's worth more than gold, and it can destroy a company's reputation in one fell swoop.

Across all industries, data security is a topic at the forefront of everyone's minds. Businesses today understand all too well what is at stake and the inevitability of an error. The challenge of data protection grows by the day as organizations increasingly share customer data across teams, partners and third-party contractors. It's the entire ecosystem at stake.

While data exposure may be a necessary evil, the damages associated with them can be stopped. The risk is only going to continue growing, while many current security measures fall short to capture the root of the problem. Data security is more important than ever before, and by harnessing the power of Machine Learning and Artificial Intelligence, it's time to get to the root of leaks.

The fundamental challenge of third-parties
It's time for a paradigm shift in the way organizations view data leaks. For a long time, the cybersecurity industry has focused on sealing up their internal networks in order to keep external threat actors out.

Pierre Cabannes
Head of International Markets
CybelAngel

Those who operate inside the wall -employees, partners, suppliers- have been viewed with relatively minimal suspicion. And yet third-party data breaches are starting to account for an increasingly larger share of overall incidents. According to the Ponemon Institute, 52 % of leaks have their origins in a system glitch or human error, and 56 % of the businesses polled in 2017 said that they had experienced a data breach linked to a vendor at some point.
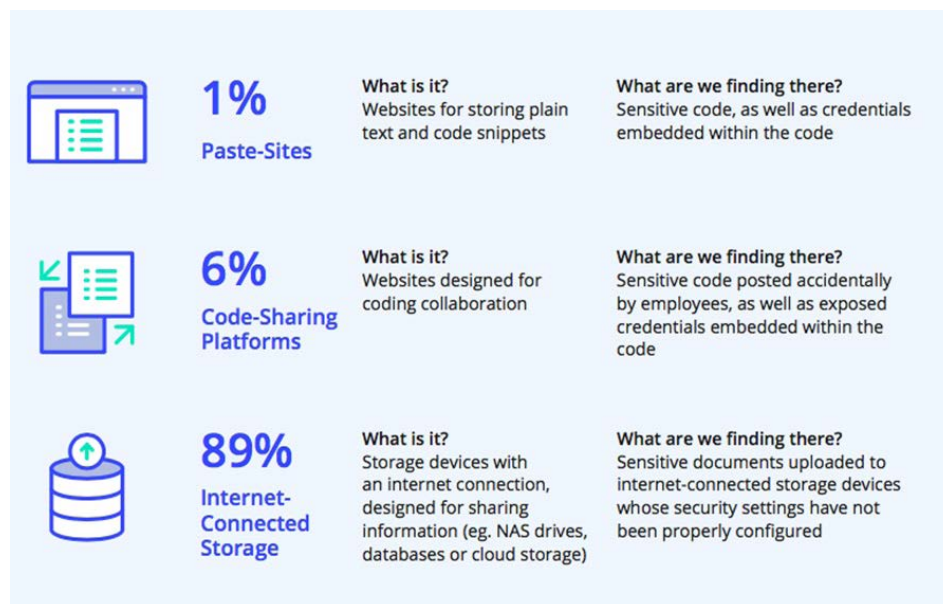
The rise in accidental data leaks is not surprising when we consider the shifts that have taken place in the way we do business: on average companies now have 470 external entities who have access to their sensitive corporate information, which is up from around 380 in 2016[1]. Ranging from MSSPs, architects, air conditioning vendors, consultants, and contractors. Companies are outsourcing everything these days from third-party payroll, to HR. Compound that with the fact that an organization's vendors have vendors who have vendors. The supply chain goes on and on. Alarmingly, 36 percent of organizations do not apply the same—or higher—cybersecurity standards to their extended ecosystems of partners as they apply to their own business.

Organizations now need a holistic view over how far their digital footprint and supply chain extend, and get visibility on

Today it's not just about protection but about how quickly you can detect and respond. Every second counts when it comes to the risks of data exposure. We know that when it comes to data exposure incidents like this, it's not a matter of if, but a matter of when.

all of their blindspots.

Where do third-party leaks happen?

1% Paste-Sites
What is it?
Websites for storing plain text and code snippets

What are we finding there?
Sensitive code, as well as credentials embedded within the code

6% Code-Sharing Platforms
What is it?
Websites designed for coding collaboration

What are we finding there?
Sensitive code posted accidentally by employees, as well as exposed credentials embedded within the code

89% Internet-Connected Storage
What is it?
Storage devices with an internet connection, designed for sharing information (eg. NAS drives, databases or cloud storage)

What are we finding there?
Sensitive documents uploaded to internet-connected storage devices whose security settings have not been properly configured

CybelAngel, 2020

Third-party data leaks are closely bound up in the culture of 'oversharing'. It is therefore no surprise that we are seeing more and more critical data leaks on internet-connected storage, a category which is literally designed to make data shareable. Internet-connected storage includes such devices as NAS drives, cloud storage and databases and the category is rising in popularity.

The global consumer market for NAS drives alone is expected to reach USD 8.2 billion by 2025. As for cloud storage, the use of these services is forecast to rise from 1.75 billion in 2017 to 2.3 billion by 2020[2]. Data storage is rising, data leaks risk is following the same curve

We are living in an economy where shareability is favored over securability. In many cases, internet-connected storage devices are misconfigured, and sensitive files can be accessible to anyone

The number of data leaks that CybelAngel finds for its customers on internet-connected storage is rising: between

2016 and 2018 the number of CybelAngel customer alerts related to internet-connected storage simply doubled. Even more alarming is the criticality of the exposed information: although internet-connected storage accounts for 26% of overall customer alerts, it accounts for 93% of the most critical.

Why is this the case? Because Individuals and companies back up and store massive amounts of information and this is the layer where third- parties are unintentionally exposing sensitive information : financial documents, sensitive premises blueprints, technical documents & drawings, personal customer data, etc.

Not only are the data breaches coming from connected storage most critical, but we're also witnessing a shift in the way cyber-attacks occur. Today, over 90% of data breaches are opportunistic attacks versus cyber criminals setting out to target a particular company. Cyber criminals are out there scanning the entire internet looking for unprotected data and open servers. Cyber criminals are opportunistically going after this low hanging-data to find their next victim and paycheck.

[1] 2 Ponemon Institute, Data Risk in the Third-Party Ecosystem (2017)
[2] Statistica, https://www.statista.com/statistics/499558/worldwide-personal-cloud-storage-users/

Case Study

In September 2017, the CybelAngel platform detected sensitive files belonging to a customer, which had been saved on the unprotected NAS drive of one its suppliers, an IT consulting firm. These files included IP addresses, server configurations and credentials of our client, which could have been used to penetrate their internal network. An alert was issued to our client instantly via the CybelAngel SaaS platform, which enabled them to take down the server and change all their passwords. Two weeks later, a member of the customer's IT security team witnessed a hacking attempt using the data which had originally been exposed by the supplier. This disturbing case shows that threat actors are indeed monitoring and exploiting data exposures on internet-connected storage, and underscores the importance of threat intelligence in order to minimize the risk.

Understanding the timeline of a data breach

Quite often the timeline of a data breach is quite long. It relates to activities that may have happened 6 to 12 months prior to it coming to light. Every single data breach begins with a flaw or vulnerability somewhere. Being informed of those negligence in real time when they occur completely changes the game and ensures a real control over public data leak risk.

The root cause of most 2019 data breaches was negligence and unsecured databases... "which left sensitive customer data unprotected in the open wilds of the internet, to be bought and sold by hackers who barely had to lift a finger to find it."[3]

What are the risks of third-party leaks?

It is clear that companies' sensitive information is being exposed by third-parties, especially on internet-connected storage.

Earlier last year, for example, the group SamSam launched a series of ransomware attacks on hospitals in the US. The group scanned the internet for RDP (Remote Desktop) connections without password protection, before breaking into and freezing networks and asking for a Bitcoin ransom. It is only a matter of time before we start reading about more such examples in the press.

Ways to counter data leaks

So, what is to be done? Perimeter-based data leak systems are no longer enough. Training and awareness initiatives not only within organizations but in collaboration with third parties are important. However, when a paradigm shift is needed on a mass scale this is easier said than done. The risks are always going to be there, slip ups will inevitably occur, after all we're only human. As unprotected files will ultimately always be freely accessible out there, the right questions to ask become: what is available, on which scale, who can access it, and what can they do with it?

Visibility over this expanding digital footprint is not as far away as it might seem. Innovative new solutions are addressing these questions head on by harnessing the power of artificial intelligence and bridging the gap when it comes to third-party data leaks. Today it's not just about protection but about how quickly you can detect and respond. Every second counts when it comes to the risks of data exposure. We know that when it comes to data exposure incidents like this, it's not a matter of if, but a matter of when.

Final Thoughts

Increasingly complex supplier networks, together with a penchant for sharing information rather than protecting it, are spawning a rise in third-party data leaks.

We've seen cybersecurity is a topic of priority for companies worldwide and a rising matter in the Middle-East.. We witnessed the Kingdom of Saudi Arabia hosting their first annual Global Cybersecurity Forum to kick off the year. A monumental event for the region and demonstration of the willingness to take action and prioritize cybersecurity. GISEC Middle 2020 is coming and conferences and tradeshows dedicated to the topic are happening every week.

The SAMENA Council has made cybersecurity a key issue and is determined to do everything in its power to protect stakeholders in the region and shed light on the most cutting-edge solutions in the world. Leadership must understand the link between their third-parties, internet-connected storage, and their confidential data. The industry needs to start taking third-party risk as seriously as it regards purely external threats, and a good place to start would be implementing data risk management solutions that provide much needed visibility to the large third-party blindspot.

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[3] https://www.cnet.com/news/2019-data-breach-hall-of-shame-these-were-the-biggest-data-breaches-of-the-year/

REGULATORY NEWS

WSIS Forum 2020: Media Registration Now Open for World's Largest Annual Gathering of the 'ICT for Development' Community

The 2020 edition of the World Summit on the Information Society (WSIS) Forum, 6 to 9 April 2020, Geneva, Switzerland, will focus on "Fostering digital transformation and global partnerships: WSIS Action Lines for achieving Sustainable Development Goals (SDGs)". In 2020, the Forum celebrates 15 years of providing a multi-stakeholder platform to discuss, share experiences, showcase innovation, and foster partnerships in strengthening the impact of information and communication technologies (ICTs) for sustainable development. WSIS Forum 2020 is organized by the International Telecommunication Union (ITU), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Conference on Trade and Development (UNCTAD) and the United Nations Development Program (UNDP), in partnership with more than 30 UN sister organizations. The Chairman Designate of the Forum is H.E. Mr. Gustavo Montalvo, Minister, Ministry of the Presidency of the Dominican Republic.

WHAT: In addition to interactive high-level dialogues and key policy statements, event highlights will also include the WSIS Prizes ceremony (18 prizes), a ministerial round table, country workshops, thematic workshops, training sessions, knowledge cafés, a photo contest, a Hackathon on Smart Sustainable Cities as well as an exhibition where exhibitors explore and address issues critical to WSIS implementation, through innovative technological ideas, hardware and applications.

Special Tracks at the WSIS Forum 2020

1. ICTs and Sports: discover how technology is taking sports to new heights. The track will focus on two angles: 1) Sports as an enabler of peace and sustainable development; and (2) Gaming and e-Sport.
2. ICTs and Youth: youth will offer their insights and propose solutions to harvest the power of ICTs for the benefit of all.
3. Extended Reality for SDGs: showcasing innovative applications of extended reality for sustainable development.
4. ICTs and Accessibility for Persons with Disabilities and Specific Needs: using ICTS to empower people living with disabilities and people with specific needs and promoting equal participation in society.
5. ICTs and Older Adults: highlighting the ICT dimension of the silver economy opportunities and the use of ICTs for the aging society. The track will focus on several areas, including healthy aging through remote care and artificial intelligence, age-friendly environments, digital skills of older adults, and more.
6. ICTs and Gender mainstreaming: addressing issues related to gender and ICTs, in particular on the digital gender divide.
7. Innovation for SDGs: providing a platform for all stakeholders to present success stories and good practices as well as discuss systemic approaches towards building ICT-centric innovation ecosystems accelerating digital transformation and facilitating achievement of SDGs.

The WSIS Forum is the only UN-system event of its kind, where both program and agenda are entirely crowd sourced during an open consultation process. The process aims at ensuring a participatory and inclusive spirit of the forum and actively engages governments, civil society, the private sector, academia, the technical community and intergovernmental organizations. The Forum enables on-site, as well as virtual participation from all over the world to engage with high-level representatives of the wider WSIS Stakeholder community, including ministers and deputies, ambassadors, as well as leaders from the private sector, academia and civil society.

Togo Says 90% of the Population Will Have Broadband Access by 2022

Togo's Minister of Posts, Digital Economy & Technological Innovations, Cina Lawson, is cited as saying that by 2022, 90% of the population will have access to fixed and mobile broadband internet services. Togo First quotes the minister as saying that the pledge forms a core part of its aim to 'extend and improve the digital coverage of the territory', pointing out that to achieve this ambitious goal – TeleGeography notes that fixed/mobile broadband penetration was estimated at 35% at end-2019 – the government is seeking to exploit 'the best points' that are in its words 'consistent with the existing infrastructure (i.e. the railway network, telco/ISP networks and E-Gov)'. The challenge facing Ms. Lawson's department, however, will be to develop ultra-high speed communications networks to benefit the economy and indeed, key sectors such as trade, health, administration and culture.

French Operators Apply for Fixed-Price 5G Blocks

The four major mobile operators in France accepted an offer to acquire 50MHz of spectrum available in a 5G frequency sale for a fixed price, regulator Arcep revealed, adding it would now take the next steps towards completing the process by June. With Orange, SFR, Free Mobile and Bouygues Telecom agreeing to take up the offer, Arcep said its next step would be to assess the paperwork they had submitted. Arcep plans to assign the blocks after the completion of a 5G spectrum auction scheduled to begin in April. Allocation of the additional 50MHz blocks will be made at the same time as operators receive the frequencies won in the broader sale, with the regulator targeting completion of both processes by June at the latest. To qualify for the 50MHz in the 3.4GHz to 3.8GHz bands at a fixed price of €350 million, operators were required to agree to a number of terms related to minimum coverage, product availability and fostering competition. Among the commitments were improving indoor coverage for businesses, supplying dedicated fixed wireless access products, greater transparency around service availability and 5G provision for MVNOs. Arcep said it would announce if the four companies had successfully made these commitments prior to the start of bidding for further blocks of 10MHz in the same bands. Between the fixed sale and auction, France expects to raise at least €2.2 billion.

5G Rule Changes in Poland and the Czech Republic Cause Controversy

As might be expected, the continuing drive to get 5G auctions and rollouts under way is throwing up a number of controversies. The latest policy debates have taken place in Poland and the Czech Republic. Urzad Komunikacji Elektronicznej (UKE), Poland's Office of Electronic Communications, has launched its second round of consultation for the planned award of 5G spectrum in the 3400MHz-3800MHz band. This award is due to take place later this year. However, requests from operators that the reserve price be lowered from about $116 million to approximately 55 percent of that sum (using reserve prices in a number of other countries as a guideline) have been ignored. The regulator has also retained the limit of one 80MHz block per bidder. This could cause problems if one of the country's four main operators were to pull out from the bidding, potentially leaving a block unsold. To add to the operators' problems, they are also being asked to speed up deployment (meaning that by the end of 2025 700 base stations should be deployed instead of 500). The Czech Republic, however, has seen even greater controversy in the form, allegedly, of a resignation, when telecoms regulator Jaromir Novak announced (publishing the letter on Twitter, apparently) his departure, over 5G auction plans. The final straw appears to have been last-minute government changes to the Czech Telecommunication Office's sale of 5G-suitable frequencies. The sale of frequencies in the 700MHz and 3.5GHz bands via auction was originally slated for this month. However, the regulator has delayed the process with new roaming conditions. Novak took issue with the government's emphasis on national roaming, which would allow consumers to switch between providers in the 3.5GHz band. He argued that the frequency cannot be used across the whole country. The government (or, more precisely, Industry Minister Karel Havlicek) insisted that the rule change is needed to attract bidders and, in a rather surprising postscript, added that Novak had in fact been fired and had not resigned. With a lot riding on getting 5G auctions and rollouts right, these surely won't be the last controversies in these countries – and many others.

Cook Islands' New Regulator to Kick off Liberalization Process Next Month

The Cook Islands government has appointed a chairperson, Bernard Hill, to the new Competition & Regulatory Authority, which will start the process of inviting a potential rival to monopoly telco Vodafone Cook Islands next month. As reported by Cook Islands News, Mr. Hill is currently Telecommunications Commissioner for the Solomon Islands and has also been Head of Competition Affairs at Hong Kong's Office of the Communications

Authority. Vodafone Cook Islands CEO Phillip Henderson welcomed the development as an important milestone under the new Telecommunications Act, saying: 'As a licensed operator Vodafone looks forward to working with Mr. Hill to deliver on the outcomes of the new Act. We are anticipating that the Authority will release regulations over the coming months associated with the telecoms sector and Vodafone will ensure that

we will be in full compliance. Deputy Prime Minister Mark Brown said: 'I am pleased to announce the appointment of Mr. Hill to this very important role as the first Cook Islands' telecommunications regulator. The Authority and its Chair are critical to ensuring a successful transition from the current monopoly situation to an efficient, effective and competitive telecommunications market for the benefit of the industry and consumers.'

BTRC to Extend Telcos' Service Quality Test to Villages

The Bangladesh Telecommunication Regulatory Commission has decided to extend its quality of service (QoS) measurement test for mobile phone network coverage and capacity to upazila and village level. The telecom regulator on February 19 issued an expression of interest (EoI) for the interested parties to conduct the test drive in designated highways, district, upazila, union and village roads and at selected spots. The firm awarded the job will be conducting drive tests for measuring and assessing the coverage, capacity and quality of service of cellular mobile networks throughout the country. The interested firms or joint venture companies were asked to respond to the EoI by March 15. The tentative timeline of the test drive to measure QoS will be from May to October. The firm/lead firm must have minimum two years' experience of measuring QoS of mobile operators through drive test, according to the eligibility criteria of the BTRC. It also said the selected firm would provide competent personnel, vehicle, fuel and other logistic support for the test drive. "This is the first time we are outsourcing

the QoS test drive because considering the degree of the job. Earlier we usually did QoS test drives in metropolitan cities and in rather small scale," a BTRC official told Dhaka Tribune. He said now as the scale of the work was big, only a few of BTRC officials would not be able to complete the task within the stipulated time. "After getting the proposals, we will send those to evaluation committee for short listing," he said. Last year, the telecom regulator conducted test drive in Dhaka and Barisal divisions to assess the quality of 4G service by mobile operators as per BTRC

benchmark of 7 MBps download speed. All the four mobile phone operators were found providing 4G internet service below the BTRC benchmark. In Dhaka, as per BTRC finding, GP and Robi maintained the benchmark while Banglalink was providing service at 6.49 MBps and Teletalk at 4.85 MBps. In Barisal, all the four operators failed to maintain the 4G internet speed as per the BTRC benchmark. In a QoS test the BTRC checks call drop rates, connection times, uplink and downlink speeds of internet in the field level network towers.

Uganda Seeks USD150M Loan for ICT Projects

The government of Uganda is looking to borrow USD150 million from Exim Bank of China to help fund ICT projects. ICT Minister Peter Ogwang is cited by The

Daily Monitor as saying that the money will be used to 'develop the national backbone infrastructure to begin implementing ICT investments in schools, referral hospitals,

districts and lower local government'. Funding will also be used to provide computers and connectivity for secondary schools.

Macedonia Delays 5G Input; Thailand Announces 5G Rollout

North Macedonian regulator the Agency for Electronic Communications (AEK) has extended the deadline for comments on the award of 5G frequencies in the country. Interested parties have been asked to comment on the terms and conditions of the spectrum auction, the demand for spectrum, the optimal way of allocating the airwaves, and a deadline consistent with the operators' return on investment. This follows requests for an extension from operators Makedonski Telekom (Telekom) and A1 Macedonia (Vip). The new date for input is 20 April, moved from 6 March. The regulator plans to initially award 5G-suitable spectrum in the 700MHz and 3.6GHz bands in the second half of 2020. By this time, DTAC plans to have at least some 5G broadband services up and running. The Thai operator, also known as Total Access Communication, plans to launch the services on its newly acquired 26GHz band in selected locations by the first half of 2020, according to local press reports. The DTAC CEO Sharad Mehrotra has been quoted as saying that his company will start

the deployment of its 5G network in the 700MHz band to extend the service to rural areas in the second half of the year. Thailand's latest spectrum auction generated over $3.2 billion, far surpassing the government's original expectations.

Chunghwa Telecom and Far EasTone Pay Extra to Secure Specific 5G Frequencies

Taiwanese mobile network operators (MNOs) Chunghwa Telecom and Far EasTone Telecommunications (FET) have spent a combined TWD4.11 billion (USD135.2 million) to secure 'optimal' 5G bandwidth, the Taipei Times reports. With the second phase of the country's 5G spectrum auction having been conducted at the end of last week, domestic operators bid to secure frequencies in optimal parts of the 3.5GHz band, after they had failed to reach an agreement on the positioning of spectrum that had been won last month. For its part, Chunghwa Telecom – which emerged as the biggest spender in the first round, paying TWD45.675 billion for 90MHz in the 3.5GHz band and TWD618

million for 600MHz in the 28GHz band – offered TWD2.08 billion for the 3.42GHz-3.51GHz block; this has been suggested to be the optimal block as there should be no second-harmonic frequency interference from existing 4G networks. On the back of the development, chairman Hsieh Chi-mau confirmed the MNO's 5G launch timeline, saying: 'Despite a higher-than-expected cost, our plan for 5G deployment remains unchanged. We aim to launch 5G service in July, based on which our customers will be able to watch the Tokyo Olympics in 4K and VR.' Meanwhile, FET spent TW2.03 billion to secure a block of spectrum at 3.34GHz-3.42GHz; it had previously won 80MHz in the 3.5GHz band with a TWD40.600

billion bid, as well as 400MHz at 28GHz for TWD412 million. It is understood that FET now aims to commercialize 5G in the third quarter of 2020. With Taiwan Mobile Company and Taiwan Star – the other winning bidders in January's auction – opting against paying additional monies for their specific spectrum allocations, it was noted that the former will take the 3.51GHz-3.57GHz block and the latter will be assigned the 3.30GHz-3.34GHz block. Taiwan Mobile is now expected to launch its 5G services in Q3 2020, while Taiwan Star is looking to begin offering 5G connectivity 'as soon as possible'.

EU Commission Issues "5G Toolbox", Allowing Huawei in 5G Rollout

The European Union has issued a set of guidelines, referred to as the "5G toolbox", and allowed Huawei to continue participating in Europe's 5G roll. The guidance comes just a day after the British government officially approved Huawei's involvement in 5G networks in the United Kingdom. In a Huawei media statement following the publication of the European

Commission's 5G toolbox, Abraham Liu, Huawei Chief Representative to the EU Institutions, commented: "Huawei welcomes Europe's decision, which enables Huawei to continue participating in Europe's 5G roll-out. This non-biased and fact-based approach towards 5G security allows Europe to have a more secure and faster 5G network. Huawei has

been present in Europe for almost 20 years and has a proven track record with regard to security. We will continue to work with European governments and industry to develop common standards to strengthen the security and reliability of the network," added Liu.

OFCOM Finds no EMF Radiation Concerns Following 5G Tests

As part of its job the UK telecoms and media regulator conducts a spectrum measurement program, which has been measuring the electromagnetic field (EMF) emissions from equipment used to transmit mobile signals and other wireless services for a number of years. Previously this focused upon existing mobile services (2G, 3G and 4G) but the work has now been extended to 5G and related frequencies. Ofcom measured EMF emissions at some 16 sites used for 5G in 10 cities across the

UK, focusing on areas where mobile use is likely to be highest. Mobile operators tend to direct the most spectrum and capacity at busy locations in order to better feed rising consumer demand. At every site, emissions were said to be a "small fraction" of the levels included in international guidelines – set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). And indeed the absolute maximum measured at any single site was approximately just 1.5%

of those levels, which is nicely under the ICNIRP threshold. In fact most 5G readings were many times lower than even that. For example, at sites around Charing Cross in London, where a 3.4GHz based 5G signal was detected, the levels were just 0.0005% (Location 1), 0.0014% (Location 4) and 0.0007% (Location 5). As above, this reflects a percentage of the ICNIRP reference levels for general public exposure. Ofcom also covered EMF emissions close to the 60GHz (mmWave band) fixed wireless equipment in Liverpool (this is a 5G trial provided by Blu Wireless) and again found nothing to worry about (the highest was just 1.2% of the reference level). Details on all of Ofcom's surveys can be found here. Generally all manufacturers, installers and operators of wireless equipment should already be aware of the ICNIRP guidelines, and factor them in to how they plan their services. However, just to be sure, Ofcom are now proposing new license conditions for spectrum licensees using equipment that can transmit at power levels above 10 Watts. The proposals would mean licensees must operate within the ICNIRP guidelines as a condition of their Ofcom license – including keeping data and records of any testing to demonstrate their compliance. The consultation on this will remain open until 15th May 2020 but since operators already work within ICNIRP guidelines then it's unlikely to have much practical impact.

Table 4.1: Highest average exposure levels at all locations visited

City	Measurement location	Highest All Band value (% of ICNIRP level)	Highest 5G Band value (% of ICNIRP level)
Belfast	Lanyon Place	0.0807	0.0006
Birmingham	Mailbox Birmingham	0.4688	0.0386
Bristol	St Augustine's Parade	0.0460	0.0068
Cardiff	The Senedd	0.1195	0.0060
	St David's Centre	0.0823	0.0041
Edinburgh	Gorgie Road	0.1419	0.0004
Glasgow	Renfrew Street	0.1399	0.0044
Liverpool	Lawrence Road	0.1371	0.0069
	Hatton Garden	0.0894	0.0011
London	Canary Wharf	1.4960	0.0000
	Victoria Station	0.2483	0.0042
	Charing Cross	0.5970	0.0014
	Waterloo Station	0.3828	0.0065
Manchester	Crumpsall Vale	0.0736	0.0016
	Great Bridgewater Street	0.2460	0.0019
Stevenage	Wedgwood Gate	0.0654	0.0008

DITO Confident it has Deep Enough Pockets to Take on Telecoms Duopoly

The Philippines' New Major Player (NMP) DITO Telecommunity says it has 'enough' resources to challenge the might of de facto duopoly PLDT Inc. and Globe Telecom, including recent additional funding from the Bank of China to help fund its first year of operations. The NMP, a joint venture of China Telecom Corp, Dennis Uy's Udenna Corp and Chelsea Logistics Holdings, has reportedly drawn down PHP25.3 billion (USD500 million) from its Chinese lender, with a view to building up to 1,600 cell

towers and rooftop installations by July 2020, its chief admin officer Adel Tamano is cited as saying. Tamano told journalists that DITO is 'confident' it can construct 5,000 cell sites, and has built 600 to date, and was keen to quash rumors that the newcomer lacks the financial resources to meet its rollout targets. 'There are rumors that we don't have resources for the rollout. We have drawn down [a] USD500 million facility from the Bank of China … This is enough for the first year

requirement for the rollout,' the official said, adding that the NMP could even 'exceed' its preliminary investment target of PHP303 billion for the deployment, while noting that on the technical front, DITO should have 37% coverage by July (with minimum 27Mbps speeds) – as per the T&Cs of its license. A 'stress test' will be carried out in September, before the official launch of commercial operations in March 2021, Tamano said.

FCC Reviews Net Neutrality Ruling

The US Federal Communications Commission (FCC) called for fresh comment on its decision to ditch net neutrality protections in 2017, after a court ordered it to assess potential negative impacts of the move. Specifically, the FCC said it is seeking input on how the rule change may have affected public safety, regulation of access to utility infrastructure and funding for the Lifeline broadband subsidy program, a government scheme offering contributions towards broadband fees to people on low incomes. Comments are due by 30 March, with replies to be filed by 29 April. In a statement, FCC Commissioner

Jessica Rosenworcel said people who were dissatisfied with the regulator's repeal of net neutrality rules should use the comment period to "make noise" and "let Washington know how important an open internet is for every piece of our civic and commercial lives". The request for feedback comes after a court in October 2019 largely upheld the FCC's decision to scrap rules which barred internet service providers from blocking, throttling or offering paid prioritization. However, it asked the FCC to review the order's impact on the aforementioned areas, finding it failed to do so previously. Opponents of

the FCC's net neutrality decision argued in court paid prioritization could hinder the ability of emergency workers and the general public to communicate during crisis situations.
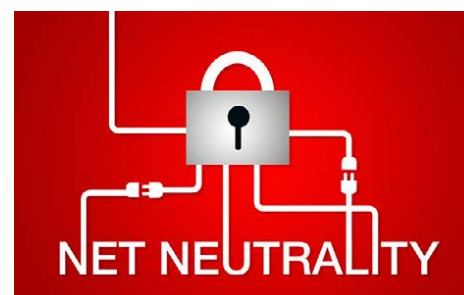
ABCom Takeover Gets Nod from Competition Authority

Albania's antitrust watchdog the Competition Authority (Autoriteti i Konkurrences, CAA) has given conditional approval to Vodafone Albania's planned acquisition of cable broadband provider Albanian Broadband Company (ABCom). In its analysis, the regulator found that the takeover would not strengthen Vodafone's dominant position in the mobile market nor establish dominance

in the fixed market. The CAA was nevertheless wary of the potential impact on the fixed and mobile sectors and imposed a number of conditions on the tie up. As such, Vodafone was ordered to 'no longer abuse its dominant position' through: the direct or indirect setting of unfair prices; offering different terms for the same offers; or establishing conditions for contracts in which the other party must take on additional obligations not related to the subject of the contract. Vodafone/ABCom was also required to maintain separate accounts for fixed and mobile services, to ensure that the source of revenue can be identified. Other safeguarding measures imposed by the regulator include monitoring the merged entity's activities for a twelve-month period, during which the CAA should be notified in advance of any plans to change service packages or introduce new tariffs. The CAA also recommended that the sector watchdog the Electronic and Postal Communications Authority (Autoritetit Te Komunikimeve Elektronike Dhe Postare, AKEP) approve in advance any new package that combines fixed and mobile services in the same bundle, and require providers to list the respective prices of the component services featured in the package.

NTA Allows Ncell to Use Additional 1800MHz Frequency

Nepal's telecoms regulator, the Nepal Telecommunications Authority (NTA), has authorized Ncell to use the 9MHz of additional frequency in the 1800MHz band it acquired in the country's first spectrum auction in December 2019, reports The Himalayan Times. The regulator had originally warned that the bandwidth would only be released once Ncell, Nepal's second largest mobile network operator

(MNO), had paid its NPR22.5 billion (USD195 million) capital gains tax bill in full. The government has now directed the NTA to authorize its use, however, after Ncell paid an initial instalment of NPR4.5 billion. The spectrum award is subject to Ncell meeting several conditions. The operator will initially be required to expand its 4G service across all 77 districts by the end of 2020, achieving 95% population

coverage in district capitals, before providing coverage to at least 95% of country's territory and population by the end of 2022. Ncell will also have to install 3,000 new 4G towers across the country by 2022, and achieve download speeds of at least 20Mbps in urban areas and 10Mbps in rural zones.

Regulator Clarifies Reports on 'Strained Relations' with Vodacom

The Lesotho Communications Authority (LCA) has released a statement clarifying recent local media reports 'alluding to strained relations' with telecoms operator Vodacom Lesotho. Firstly, in August 2019 the regulator says it issued a penalty of LSL8.2 million (USD547,000) to Vodacom after it failed to pay regulatory fees due on or by 1 July 2019. The following November, the LCA published a statement notifying the public of the penalty, although the matter is currently pending before the High Court. In a separate matter, the LCA is also accusing Vodafone of failing to meet Universal Service Fund (USF) obligations to provide a total of 150 schools with internet access, and of not providing complete and accurate information regarding this obligation, despite several requests to do so. Thirdly, the LCA says that Vodacom has not appointed an independent auditor, as required under the terms of its operating licence. As such, the watchdog has requested that Vodacom provide written reasons within 90 days for why its concession should not be revoked. Additionally, the LCA accuses Vodacom of failing to comply with tariff conditions. Finally, the LCA clarifies that it is not aware of, and has not issued any notice relating to, the alleged irregular acquisition of a 20% stake in Vodacom by Sekhametsi and 'distances itself from such allegations'.

Brazilian Telecoms Regulator Discusses 5G Auction Rules

Brazilian telecoms regulator Anatel has launched a public consultation to discuss the rules of what could be the world's largest single auction for fifth-generation (5G) spectrum later this year. The consultation will last for 45 days and will set the specific details of the auction. A draft version of the rules had been approved by Anatel's board earlier this month. In a recent interview with Reuters, Nokia's CTO in Latin America, Wilson Cardoso, described the event as "the world's biggest-ever" auction of 5G suitable frequencies. The auction was originally scheduled to be held in March, but it was then delayed to at least the end of the year - it is now likely that will take place in November. Such delays could cost Brazil billions in lost tax revenues as well as investments: vendors like Ericsson and Nokia have shown interest in the country's coveted 5G spectrum and have announced plans to invest heavily and attract opportunities to the Latin market. Over the last few months, the telecoms sector has been considering the possibility of delaying the 5G auction as a result from pressure from the United States. The US wants to prevent Chinese businesses such as Huawei from operating in the 5G markets of its allies, including Brazil. However, the Brazilian government doesn't seem willing to oblige. Last year, Brazil's vice-president Hamilton Mourao said the country would not interfere in Huawei's activities. According to Mourao, Brazil wants the Chinese giant to invest in local infrastructure, as long it creates local jobs and plays by the government's rules.

Attorney General Opens Investigation into Spectrum Auction

The Attorney General's Office has opened a disciplinary investigation into a senior Ministry of Information Technologies and Communications official regarding the handling of the recent spectrum auction, in particular the 'alleged inconsistencies in the Partners selection process'. As part of the process, the office has requested that the ministry temporarily suspend the granting of spectrum rights until it can determine whether newcomer Partners – the bidding vehicle used by Novator Partners, the Icelandic-owned, London-based owner of Chilean upstart operator WOM – complied with conditions for objectivity and transparency. The Attorney General is also looking to clarify the amount that the government would obtain from the December 2019 sale. In a statement, the investigator noted that the MinTIC official was accused of allowing capital funds such as Novator to participate in the auction under more flexible conditions than other interested parties. As previously reported by TeleGeography's CommsUpdate, Partners botched its bid for 2500MHz spectrum and mistakenly entered a bid of COP1.748 trillion (USD534.2 million) for Block 2 in the band, well ahead of its bids for Block 5 (COP293.2 billion) and Block 6 (COP173.5 billion). The company asked that the erroneous bid be withdrawn and although MinTIC stated that it would consider the request it has yet to reach a decision on the matter.

NBTC Gears Up for 5G Auction

Thailand is set to hold its 5G auction with the telecom regulator warning bidders to be realistic with their offers as the government can no longer intervene to help should their business models not prove viable. Takorn Tantasith, Secretary General of the National Broadcasting and Telecommunications Commission (NBTC), said the NBTC is fully prepared for the electronic auction. The agency has organized six rooms for the five qualified bidders. The extra one is in case of an unexpected hiccup with one of the other five. The secretary-general led the press to visit the venue to be used for the historic auction at NBTC headquarters. The bidders are Advanced Info Service (AIS), True Move H Universal Communication (TUC), Total Access Communication (DTAC), TOT Plc and CAT Telecom Plc. The 700MHz and 2600MHz frequency ranges will be contested by AIS, TUC and CAT. All but CAT will vie for the 26-gigahertz range. No company has registered to bid for the 1800MHz range. "I want to reiterate to the bidders that they should be prudent in submitting bidding prices. Unlike in the past, they will not have Section 44 to help anymore," said Mr. Takorn. The secretary-general said the telecom bidders should learn from the auctions of digital TV licenses in 2013 and 4G licenses from 2015 onwards when the reference price for digital TV and the 900MHz spectrums were set at 10 billion baht for each license but bids exceeded 50 billion baht for digital TV and 70 billion baht for the 4G spectrum. In April last year, the now-defunct National Council for Peace and Order, used its special powers under the interim charter's Section 44 to bail out digital TV operators and delay payments for three 4G license operators for another five years. On the bidding day, Mr. Takorn said bidders will draw for auction rooms at 8.15am and the first auction will start with the 700MHz spectrum at 9.30am. He said the "clock auction" system will be used for the 5G auction for the first time in the country. The auction will proceed on a round-by-round basis, where products are split into smaller sets and they can open auctions at the same time. Mr. Takorn earlier estimated the combined winning prices in the auction could surpass 70 billion baht while overall 5G network investment could reach 130 billion baht this year and 200 billion in 2021.

Thai Operators Bid $3.2B on 5G

Strong interest from operators in Thailand pushed up spectrum prices in an auction which exceeded government expectations, as three lots of the 700MHz band alone generated THB51.4 billion ($1.64 billion) in bids. State-owned CAT Telecom acquired two of three 5MHz blocks available for THB34.3 billion, which its president Sappachai Huwanan hailed as an important milestone, with the company preparing to use the low frequency band to expand its 4G and 5G coverage, and increase capacity. He noted the 700MHz band is key for the future as its holding in the 850MHz band expires in 2025. The auction of 2805MHz across the 700MHz, 2600MHz and 26GHz bands raised THB100.5 billion, with all but one 100MHz lot of 26GHz spectrum sold in a one-day auction yesterday (16 February). Market leader AIS was the major winner, spending THB42.1 billion for the remaining 5MHz block in the 700MHz band, 100MHz of 2600MHz and 1200MHz in the 26GHz band. It was restricted from bidding for more due a 100MHz cap in the 2600MHz band and 1200MHz cap in 26GHz. True Move, the second-largest operator by subscribers, picked up 90MHz of 2600MHz spectrum and 800MHz in the 26GHz band for THB21.45 billion. State-owned TOT acquired 400MHz of 26GHz spectrum for THB1.8 billion, while dtac purchased 200MHz in the

band for THB910 million. Dtac CEO Sharad Mehrotra said with the acquisition of 26GHz spectrum, "we now have access to low-, mid- and high-band spectrum to provide our customers with the best data experience in the future". Thailand's regulator raised its expectations for proceeds in late January, after the government approved participation by state-owned operators.

Armenian Antitrust Regulator Assesses Ucom's Bid for VEON Armenia

The State Commission for Protection of Economic Competition of the Republic of Armenia (SCPEC) has begun the process of considering Ucom's application to take over larger rival VEON Armenia (trading as Beeline). Arka News reports that SCPEC met on 11 February to initiate discussions on the application, with Chairman Gegham Gevorgyan noting that sessions are behind closed doors because of the commercial sensitivity of the subject. Gevorgyan said that the commission is discussing various aspects 'from the share at the market to the number of customers and the change dynamics', adding that he has tasked the Public Services Regulatory Commission (PSRC), the State Revenue Committee and the National Radio and Television Committee to provide all 'appropriate information' to fully consider the ramifications of

the takeover. Gevorgyan admitted to concerns over how the takeover could impact the domestic market, given that both Beeline and Ucom are dominant forces in the fixed and mobile segments, and said that SCPEC is keen to avoid a monopoly position developing. He did, however, suggest that the antitrust agency could 'decide to give a partial permission for the sale, for example, excluding the fixed telephony network', but if so, 'both companies' consent will be needed to conclude the deal'. One other alternative might include a condition that Ucom would have to divest 'a part of [its] services to another operator, or to propose the companies to use some infrastructures jointly' he said. The antitrust agency has 90 days from the submission of the application (30 December 2019) to consider the application. As previously reported

by TeleGeography's CommsUpdate, PSRC official Liana Azizyan confirmed that an application had been submitted in late-December and that according to the current procedure, [this] should be discussed with all competent authorities. Subsequently, a statement from VEON Ltd dated 15 January read: 'VEON … has noted recent media comments concerning a potential sale of VEON's business in Armenia and confirms that it has entered into discussions with Ucom LLC regarding such a potential transaction. These discussions may or may not result in a transaction. VEON will communicate material updates, if any, in accordance with regulatory requirements.'

EC Adds 5G to List of Qualcomm Gripes

Qualcomm revealed it was the subject of a European Commission (EC) competition investigation related to the sale of 5G equipment, with a potential penalty of 10 per cent of annual revenue or business restrictions if found guilty. Alongside its latest financial report, the company said it received a request for information from the EC as part of an ongoing probe into whether Qualcomm misused its market position in the 5G baseband processor

market to gain an unfair advantage in selling RF front-end kit. Qualcomm said it was in the process of responding to the request, but emphasized it believes its business practices do not violate European Union competition rules. In a stock market filing it added "it is difficult to predict the outcome of this matter or what remedies, if any, may be imposed by the EC," adding a sizeable fine or injunctions on activities could be imposed. This is not the first time

Qualcomm faced EC scrutiny, with huge fines levied on the company in the last two years, though these are being appealed. In 2019, it was penalized €242 million for breaches related to 3G technology dating back to 2010 and was also hit with a massive €997 million charge following an investigation into its dealings with Apple. Qualcomm maintains its innocence in both cases.

US Raises USD 7.6 Billion in Auction of 37, 39, 47 GHz Bands for 5G

The US FCC announced it's completed the auction of the upper 37 GHz, 39 GHz and 47 GHz bands, which started on 10 December 2019. The auction of 5G spectrum attracted total bids of USD 7.56 billion, and bidders won 99.9 percent of the licenses on offer. A total of 35 companies qualified for bidding

in the auction. The winners will be known after a second round of bidding on specific frequency blocks in the assignment phase of the auction. US operators, as well as vendors such as Ericsson, Intel, Nokia and Huawei, have already been testing these bands for 5G services, with plans

particularly advanced for the 39 GHz band. AT&T is expected to use the 39 GHz band to boost its 5G coverage in urban areas. The company lost out in a bidding war in 2018 with Verizon to acquire significant holdings in the range with the company Straight Path.

FCC Approves US$20 Billion Rural Broadband Funding Plan

The Federal Communications Commission voted to approve a $20.4 billion plan to subsidize the construction of high-speed broadband networks in rural America. FCC Chairman Ajit Pai called the vote the "biggest step the FCC has ever taken to close the rural digital divide." The Rural Digital Opportunity Fund will help internet service providers deploy broadband over 10 years to areas currently lacking service of at least 25 megabits per second download and 3 Mbps upload speeds. The federal agency estimates about six million rural homes and businesses are located in areas that could benefit from the initiative. Internet service providers, including telecoms and government utilities, would bid to provide broadband and voice services to the locations. The FCC's three Republican members voted for the rules, while the two Democratic members supported the plan but dissented in part. Democrats said they were concerned that not enough has been done to fix the FCC's maps that show where broadband is and isn't available. Without correcting what many say are flawed maps, it is impossible to say what areas of the country most need help with access, they said. FCC Commissioner Jessica Rosenworcel cited the example of Duanesburg, New York, where a survey of residents found that about half of the FCC's broadband maps were incorrect in their indication of which residents had access to broadband. "There are a whole lot of communities just like Duanesburg all across the country," she said. "The FCC should know where service truly is and is not. It should be that we figure this out before sending federal funds who knows where to build who knows what." Pai said the areas that will be targeted in phase one of the plan are known to not have broadband access. He said the FCC should not make those Americans wait for a time-consuming analysis to be completed in order to receive better service. An analysis to determine what other areas also need assistance will be completed in phase two of the project, he said. The FCC released an analysis earlier this

month indicating which states had the most locations eligible for the $16 billion in funding available through the first phase of the plan. California, Texas, Michigan and Wisconsin topped the list. Through that same analysis, the FCC decided that Alaska and New York would be ineligible for funding through the program because of "previously established programs to fund rural broadband in these states." During the meeting, Commissioner Geoffrey Starks, a Democrat, raised concerns that an updated version of the order might undermine efforts to leverage multiple resources to improve broadband access. He said the order includes a provision that would exclude any areas from getting funding if the location was "awarded funding through the U.S. Department of Agriculture's ReConnect Program or other similar federal or state broadband subsidy programs, or those subject to enforceable broadband deployment obligations." Starks said he believes that could potentially disqualify nearly 30 states from eligibility of Rural Digital Opportunity Fund money. "These provisions discourage badly needed state-federal partnerships, risk unequal application of the rules between states, and create an unnecessary risk of litigation," he said. Harold Feld, the senior vice president at Public Knowledge, a consumer advocacy non-profit, said the group is waiting to see what the final wording of the order says, but cautioned that limiting access to the fund would harm millions of rural Americans who do not have broadband access. "We should encourage states to take initiative and reward those that rise to the challenge," he said. "At least, we should not punish states by making them depend exclusively on underfunded federal programs doled out from Washington, D.C." Angelina Panettieri, the legislative manager for information technology and communications at the National League of Cities, said local telecommunications projects often have to rely on multiple funding streams because one single funding source is not enough to cover the total cost of a project. The decision could potentially preclude state and local governments from weaving together funding from a variety of sources to meet their infrastructure needs, she said. For example, members of New York's Congressional delegation told the FCC this month that despite the state's own broadband initiative, there are still areas of the state in need of federal investment. In a letter, they asked the FCC to change its decision to leave the state out of the first phase of its plan because of past investments, saying they were "deeply disappointed." Pai said Thursday that the FCC would welcome any information the states would like to provide to demonstrate need. But he said money should not be spent on efforts where companies are already under obligation through other agreements to deploy broadband. "We must target our limited funds to bring broadband to those who will otherwise not be served," Pai said. "That means limiting efforts to areas that do not have broadband and where there are no current federal and state programs that will ensure broadband is deployed in the near future."

European Telcos Support Harmonized and Fact-Based EU Rules on 5G Security

ETNO, the Association representing Europe's leading telecom operators, supports a harmonized EU approach to 5G security. Security is at the heart of our on-going work to deploy resilient 5G infrastructure across European territories. We therefore welcome today's publication of the "5G Security Toolbox", presented by EU Member States with ENISA and the European Commission. Europe's decision-making on 5G should continue being based on facts, it should be proportionate to threats and build on a solid understanding of technology reality. In this context, we invite National Governments to avoid disproportionate actions that negatively impact the investment climate, and which could in turn harm both Europe's competitiveness and its strategic position in 5G development. Technological

developments indicate that 5G provides new, innovative opportunities for making networks and communications more secure. Technologies such as network slicing, encryption and AI-based network controls provide new tools to increase the resilience and security of a country's digital infrastructure. At the same time, telcos are stepping up their security efforts so that resilience is ensured also in complex network architectures, which present a broader surface for potential attacks. From the viewpoint of Europe's competitiveness, a timely roll-out of 5G is a key enabler of the European Commission's objective to ensure EU leadership in global digital markets. This is crucial to empower both consumers and business across European regions. Telecom companies remain fully committed to such objective and believe

that strong pro-investment policies in the field of spectrum auctions, network sharing and fiber roll-out are all essential to achieve a better climate for European telecom investment. In this context, European telcos will continue pursuing a multi-vendor strategy, so that Europe can rely on a diverse pool of network suppliers, who compete to deliver high-quality, secure and affordable network equipment. ETNO and its members look forward to collaborating with National Governments, ENISA and the European Commission to continue ensuring an informed and technology-savvy implementation of the 5G security framework. This includes a European approach to Cybersecurity assessment and certification of critical network elements.

World Economic Forum and ISPs Lay Out New Internet Security Principles

The World Economic Forum Centre for Cybersecurity, in cooperation with leading Internet service providers (ISPs) and multilateral organizations around the world, have developed new Internet security principles to help protect up to one billion consumers in 180 countries. According to the World Economic Forum's Global Risks Report 2019, the impact of indiscriminate malicious activity on the Internet can be significant and will carry an estimated global price tag of USD 6 trillion in 2021. The new Cybersecurity principles have been endorsed by BT, Deutsche Telekom, du Telecom, Global Cyber Alliance, Korea Telecom, Proximus, Saudi Telecom, Europol, Singtel, Telstra, Internet Society, and the ITU. It is stated that ISPs are a critical community that have the ability to protect consumers against Cybersecurity threats and therefore have a significantly positive impact on their safety. Amy Jordan, Delivery Lead, Platform for Shaping the Future of Cybersecurity and Digital Trust, World Economic Forum, said, "Cybersecurity is becoming a public safety issue. As more and more devices are connected and physical infrastructure becomes increasingly connected, no


Shaping the Future of Cybersecurity and Digital Trust

one company can do it alone. The community needs to come together, and these principles can accelerate and scale impact." After a year of development and testing, the partners have identified four effective principles as being successful in preventing malicious activities from reaching consumers. It is recommended that ISPs protect consumers from widespread cyber attacks by default, and act collectively with peers to identify and respond to known threats. The providers need to take action to increase their understanding of threats and to assist consumers in protecting themselves and their networks. The ISPs also need to work closely with hardware, software and infrastructure manufacturers and vendors to increase minimum security levels, as well as take action to increase the security

of signaling and routing to reinforce their defense against attacks. "By adopting these best practice principles and working with governments in a public-private partnership to create a supportive policy framework, we will collectively boost trust in the digital economy and significantly reduce cybercrime," said Stefaan De Clerck, Chairman, Proximus Board. The World Economic Forum said it will now use its Platform for Shaping the Future of Cybersecurity and Digital Trust to drive the adoption of their stated principles. In addition, this organization will seek to initiate a dialogue between public and private stakeholders on how governments can advance the implementation of these principles, and also establish clearer policy frameworks and expectations.

EC Continues 5G Security Push

The European Commission (EC) published a slate of recommendations designed to ensure security of 5G infrastructure in member states, while placing the onus on individual countries to assess the role of the vendors involved in supplying core network equipment. In its EU Toolbox for 5G Security, the EC calls on regulators to ensure they have powers in place to impose tight rules on mobile operators in relation to the make-up of their supply chains. Specifically, it wants national authorities to assess the risk profiles of vendors, impose restrictions for those deemed high risk and exclude specific companies from supplying "key assets" to networks. It recommends individual operators limit dependency on any one supplier with a multi-vendor strategy in place, similar to policies outlined by the UK. The EC document also provides detailed guidelines for mitigating specific risks in 5G and provides an overview of key strategic and technical measures for use by member states. European Commissioner Margaritis Schinas said: "A genuine security union is one which protects Europe's citizens, companies and critical infrastructure. 5G will be a ground-breaking technology, but it cannot come at the expense of the security of our internal market." "The toolbox is an important step in what must be a continuous effort in the EU's collective work to better protect our critical infrastructures." Its latest document was compiled as part of a wider plan to ensure 5G

network security commenced in March 2019, which provides best practice information for countries, but does not impose legally-binding rules. However, in a statement, the EC said all member states had agreed to take steps as outlined in the toolbox by 30 April, with status reports on each country's progress due by 30 June. Under EU rules national security matters fall under the remit of individual countries, but the EC is pushing for a coordinated approach for 5G.
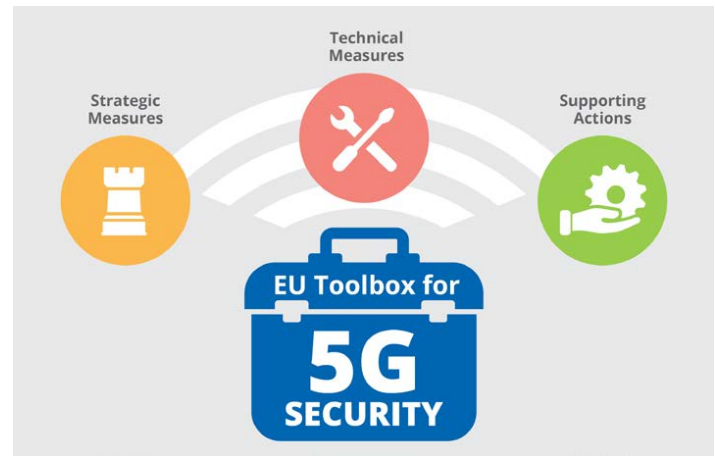
UK Imposes New IoT Rules Designed to Improve Safety

The UK Government has unveiled new rules for the growing consumer connected objects segment, forcing the ecosystem to take a more rigorous and conscious approach to security. The new law has been drafted by the Department for Digital, Culture, Media and Sport (DCMS), focusing on three requirements for the manufacture and sale of connected objects in the UK:

1. Devices must have unique passwords and no 'factory reset' option
2. Reporting functions for vulnerabilities must be created by all manufacturers
3. Consumers must be made aware of the minimum length of time security updates will be received for the products at the point of sale

Although connected devices have been

flooding onto the market in recent months, the security credentials of some are questionable. There are likely to be many reasons for this, though the pursuit of profitability is likely to be sitting at the top of the list. Security is a growing concern for the general public in an increasingly digital society, though the risks are still greatly undervalued. It would be safe to assume only a small number of consumers would genuinely veto a purchase due to digital security concerns, and in the absence of consumer pressure for greater security, the Government is seemingly forcing the hand of the IoT ecosystem. "We want to make the UK the safest place to be online with pro-innovation regulation that breeds confidence in modern technology," said Digital Minister Matt Warman. "Our new law will hold firms manufacturing and selling internet-connected devices to account and stop hackers threatening people's privacy and safety. It will mean robust security standards are built in from the design stage and not bolted on as an afterthought." The industry on the whole has been gradually

moving towards the concept of 'Secure by Design' though the question is whether this progress is fast enough to prevent serious consequences. And to be fair, consumers are becoming more aware of the risks of a digitally orientated society. However, the fact that data breaches and leaks still occur validates the argument that security attitudes are not evolving fast enough. "Smart technology is increasingly central to the way we live our lives, so the development of this legislation to ensure that we are better protected is hugely welcomed," said Nicola Hudson, Policy and Communications Director at the National Cybersecurity Centre. "It will give shoppers increased peace of mind that the technology they are bringing into their homes is safe, and that issues such as pre-set passwords and sudden discontinuation of security updates are a thing of the past." This is perhaps the risk which is being faced today. As these devices are just making their way into mass market purchases, new customers are being engaged, and perhaps these new

customers are not technology-enthusiasts. Some might consider purchasing a TV today as no different from a decade ago, therefore not appreciated the risk which a gateway to the internet creates.

The question is whether this is the best approach to ensure security?

The consumer IoT space is an incredibly fragmented and embryonic ecosystem. There are a huge number of inventors attempting to create the next big thing and companies attempting to embed connectivity into everything or anything. It is a lot of moving parts and plenty of opportunity for something to go wrong. Some companies might go out of business, and therefore stop offering security updates. In the mad rush to get products to market, some elements might be overlooked. And of course, there are those who will simply ignore the rules. This might sound negative, but it is reality. The Government is not doing anything wrong by suggesting this new law, it is certainly progress to force more security conscious products onto the market, but there are

of course challenges to be aware of also. But as with every challenge, there is an opportunity to be the good guy. Security solutions for digital products are nothing, anti-virus software has been around for decades after all, but security platforms to manage all connected objects inside the home are not common. This is not to say products should not be 'Secure by Design' but added layers of security, and a proposition which helps manage the complexities might well be a product more digitally aware consumers would buy into. In creating these new rules, the ecosystem is being forced down the right path, while it promotes the concept of Cybersecurity in the minds of the consumer also. The more aware, and afraid, the consumer is of the dangers of a digital society, the more likely they are to spend money. The question is, who could create a platform to address this area? The telcos are in a strong position, but you can bet Big Tech is already investigating.

Ghana Independent Broadcasters Association Sues NCA Over DTT Access Control Policy -Reports

The Ghana Independent Broadcasters Association (GIBA) has reportedly dragged the National Communications Authority and the Attorney General's Department to court over the NCA's decision to enforce Conditional Access for Free-to-Air TV broadcast. GIBA says that the Conditional Access for Free-to-Air TV broadcast is a violation of the right to free press that was enshrined in the 1992 Constitution. In a document filed at the Supreme Court last week, GIBA argued that the Conditional

Access System that has been introduced as a mandatory requirement by the NCA brings an unnecessary restraint on the operation and establishment of private media. The Conditional Access System will ultimately see media content of Free-To-Air broadcasters blocked by Ghana's government unless specific criteria have been met before access to the content is granted to the general public. GIBA also wants a declaration that the blockage of the media content of Free-To-Air broadcasters

through the use of this Conditional Access System is an unconstitutional and unnecessary abridgement of the freedom of the press. The Association is seeking an order instructing the NCA to remove any system in the nature of Conditional Access that blocks the content of Free-To-Air television channels from being broadcast. The NCA had made no media statement regarding this matter at the time of going to press.

ARTICLE

A New Dawn in Security: Who is Responsible for the Protection of a Nation's Critical Communications Infrastructure?

With attackers becoming more sophisticated in terms of resource and strategy, and our society's interconnectivity blurring borders, it is more important than ever that national regulators and mobile operators across the globe work together to defend against attacks on critical communications infrastructure.

Brian Collins
CEO
AdaptiveMobile Security

Setting A New Stage

There has been much discussion about the advent of new technologies, the first 5G deployments and the increasing possibility of connected cities. As a society we are swiftly moving to an interconnected world – one that thrives on speed, connectivity and innovation. A world where new guidelines and regulations are being driven by serious privacy concerns, coupled with the ingenuity of hackers' and attackers' determination to circumvent defences currently in place across a multitude of industries.

In recent years we've witnessed the interception of a heart monitor, the intentional crashing of a self-driving car, children's toys being turned into remote surveillance devices and millions of people have had their personal identifiable information stolen in an array of malicious and devious manners . While we face this new era of connectivity and the endless possibilities that come from humankind's innovation, we must also address the underlying security concerns and ensure that our privacy and in turn our well-being are protected from the offset.

Telecommunications infrastructure is a vital part of the discussion when it comes to reviewing how to best secure National Critical Infrastructure (NCI). Teleommunication networks are a proven component in driving the socio economic growth of a nation. The Oil industry ,financial industry and transportation industry are just

some examples of different market sectors that are totally dependent on resilient, always available telecommunication networks. Mobile networks, due to their convenience, pervasiveness and increasing innovation (5G) must be considered critical infrastructure and their ensured security and protection must be at the top of Government agendas if their ambition is to support the digital aspirations of its citizens.

Cyber-Security and Protecting Against the Future of Warfare

Media headlines the world over have been prophesising devastating scenarios from cyber-attacks, and the conversation has turned from what could happen, to real-life news stories of attacks.

This is compounded by industry predictions that the next war will be a cyber-based one – to be waged via "computers, servers and digital weapons". Cyber-warfare threatens our connected future and becomes exceptionally relevant when it's realised that the underlying telecommunication infrastructure has been vulnerable to attacks for a number of years.

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As is well-researched and documented, signalling networks using protocols such as SS7, Diameter and GTP are under attack from adversaries and fraudsters, exploiting loopholes in the protocols to breach subscriber privacy, intercept communications, deny access to key services and to directly defraud mobile

operators. These signalling attacks have risen to global attention since 2014, and are continuing to increase in sophistication. Espionage on a massive scale abusing mobile telecom networks is being continuously conducted by a few well resourced, competent security agencies in the MENA region. Call intercept, location tracking, data download and device hijack are now an everyday occurrence and unfortunately due to a lack of Carrier security focus/knowledge, is getting easier everyday. The old proverb, "HE WHO KNOWS NOTHING ,FEARS NOTHING", rings true here!

The global interconnected nature of tele-communications networks has undeniably contributed to the rapid development of society overall by enabling cheap, easy, global collaboration and access to shared knowledge resources. At the same time, it has provided a headache for some governments whose motivations may be to stifle those who are perceived as a threat to their own political views and agendas.

Throughout the course of AdaptiveMobile Security's experience with working with mobile operators across the world, we continue to see evidence of state-sponsored security probing, intelligence gathering, location tracking, and voice / messaging / data interception against individuals. Telecommunications is an entirely different paradigm now, with vast services running across the networks adding a layer of complexity and complication most governments to date have chosen to overlook.

Despite this, a significant number of telecommunication providers remain relatively open to attack today. In the European Union, the Agency for Network and Information Security (ENISA) published an evaluative report on the state of signalling security in telecoms SS7/Diameter/5G, "EU level assessment of the current situation", in March 2018. This highlighted that at the time of the report, only 28.21% of responding networks had implemented a signalling firewall to guard against malicious attacks originating from the international interconnect points. The report also states

that 75% of the responding operators cited complexity and cost as the main issues blocking implementation of advanced countermeasures to signalling exploits – this indicates that there is potentially still a lack of understanding regarding the potential severity of attacks against the network, with losses on a total outage running into the millions.

Proper National Security Strategy

There are multiple players who are working to secure critical communications infrastructure through regulation, government mandates and operator's security measures.

It should be noted that the majority of a nation's key telecommunication infrastructure is essentially divested to private/public companies. Under GDPR,the recent European data regulation (May 2018) operators now own the subscriber's data security responsibility, but it's an open question as to whether they have any responsibility in protecting the actual country in which they operate.

The issue of national telecommunications infrastructure security is further complicated by the fact that regulators across the globe are often funded or part-funded by mobile operator levies or fees – the very entities that they are supposedly regulating.

One of the most significant concerns, both from a national security perspective and for the normal running of an operator's day-to-day business comes from the potential effects of security weaknesses or defects in the core components that a network is made up from. These types of issues are of particular relevance if the equipment vendor is based in a foreign country (as is most often the case), and where the nation state of that vendors home may be at odds with the nation hosting the communications network.

We know from our work with operators across the globe that progress is being made. Many carriers have deployed protective measures and many more have a strategy in place to ensure their networks are secured, yet attacks continue

to happen and are increasing in complexity and sophistication. Too many countries depend on retrospective action. Most countries will impose a rule or regulation following an incident, the key part in this activity being after the incident has taken place. Whereas this was not a serious concern in the area of fixed line voice, mobile networks now provide an endless supply of previously unavailable rich data. The temptation for criminals, fraudsters and nation-state sanctioned network abuse is simply too much for those with the resources to misbehave. Data knows no border.

> *From our extensive global experience, we believe to properly secure the national critical communications infrastructure of any country requires a multi-layered approach. Collaboration is essential between private and public sector bodies in the development of effective, consistently applied security measures.*

The Way Forward
From our extensive global experience, we believe to properly secure the national critical communications infrastructure of any country requires a multi-layered approach.

Collaboration is essential between private and public sector bodies in the development of effective, consistently applied security measures. This includes the sharing of threat related intelligence and facilitating the development of cross-sector practices in securing any nation's key communications assets and infrastructure.

The telecommunications industry is in a "somewhat unique" position within an NCI protection context, since it provides the foundational fabric upon which other NCI specific segments are dependent for their own effective day-to-day operations – by definition it provides the "Cyber" in Cybersecurity. This fact alone makes a nation's telecommunications infrastructure the single most attractive target for cyber terrorists, "hacktivists" or rogue foreign nation-state adversaries.

Attacks that exploit the interconnection between telecom networks together with the inherent weaknesses of legacy telecommunications protocols present a challenge both for operators and government bodies concerned in securing critical infrastructure.

So, Who Is Responsible?
The answer, of course, is all parties, albeit in slightly different capacities.

National Regulators are required to maintain a clear view on the types of attacks that exist, that present a threat to domestic telecommunications networks, since these are a key National Critical Infrastructure component and enabler for other critical functions including government itself.

This implies publishing a minimum set of cyber telecommunication security requirements from a legislative standpoint, together with defining a reporting strategy of anomalies from the operators, which would allow ongoing analysis of the threat landscape, its evolution and – most important – a country's adversaries. This dictates defining a legal framework that removes the current ambiguity around e.g. the privacy/ data protection considerations that may arise when implementing such defences.

Mobile Operators then have a responsibility for implementation of at least the minimum local defence required, and to work with the regulators and other responsible entities to validate that the nation's telecommunications infrastructure is secure.

The value of Intelligence cannot be undermined, and a community of intelligence is critical to allowing proper defences to be put in place for the new digital paradigm. Threats against national critical communications infrastructure are continuously evolving and attackers are adapting to current defences. Security, therefore, is a continuous process and must be a joint-effort between multiple parties.

With attackers becoming more sophisticated in terms of resource and strategy, and our society's interconnectivity blurring borders, it is more important than ever that national regulators and mobile operators across the globe work together to defend against attacks on critical communications infrastructure.

Governments ultimately own the primary responsibility of the security of their citizens, be it physical or digital. National critical telecommunications infrastructure is no different.
With almost all countries having 90% mobile phone penetration, their citizens becoming ever more digitally enabled daily, and connection to the Internet regarded as a necessity as opposed to a luxury, governments need to introduce coherent and coordinated strategies to ensure their national digital sovereignty remains intact.

This can be achieved through progressive and innovative legislation and by removing the uncertainty and incoherence that exists globally today. They need to assist their national mobile operators, who lack the expertise, to protect their subscribers form other nation state threats – after all they are the entity that benefits the licence and spectrum fees an operator pays to operate in their country.Put simply, Governments and national regulators cannot be passive when it comes to their Carriers securing the nations critical telecommunications infrastructure .

"The Birthday of a New World is at hand" decreed Thomas Paine in 1776. We would do well to apply this wisdom to the considerable and endless threat landscape that nation's face today. A new dawn of security is upon us, and a combined effort in securing critical telecommunications infrastructure would be a good start.

A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION

Afghanistan

The Ministry of Telecommunication announced a reduction of data prices by the Afghan Telecom and Salaam, state-owned telecom companies. According to the Ministry of Telecommunications, Afghan Telecom has reduced its data prices by 30% and Salaam, another state-owned telecom has reduced its internet data package prices by 20%. This comes as the telecom and internet users have been regularly complaining of a high internet price in Afghanistan. A year ago, a campaign naming '#WhereIsATRA' started by some youths against low telecom service quality and high internet prices. Mirwais Arya, one of the key members of the '#WhereIsATRA' campaign who has closely monitored the telecom operations in Afghanistan told Khaama Press that the Ministry of Telecommunication which is the wholesale provider of the internet data is ready to provide internet to the private

companies at a lower rate, but the private companies are in a tight collusion with each other trying not to lower the data prices. The main issue with the state-owned Salaam telecom company is its low technical capabilities and inability to provide the same service quality as the private companies that will of course not lead to a market competion, Mirwais Arya told Khaama Press. Mohammad Fahim Hashimi, the Minister of Telecommunications had early said that the telecom companies buy a one-gigabit internet for less than AFN 10.00, but resell at AFN 180.00 which is 18 times higher than the original price. Despite the high internet data price in Afghanistan, the quality of the service is way lower compared to the neighboring countries. The data speed in Pakistan and India, the two close neighbors of Afghanistan are much higher and the price is way low compared to Afghanistan. (February 18, 2020) khaama.com

Bahrain

The Telecommunications Regulatory Authority (TRA) has opened the registration for the Cyber Safety Award, which aims to encourage members of society and educational institutions in Bahrain, to create awareness content in the field of Cyber Safety. Registration will be open to students from public and private secondary schools, as well as educational institutions, schools and universities, to nominate distinguished students for participation. Applications are to be submitted in the form of a short film, of no more than 120 seconds in length, covering the impact of overutilization of social media on young people's social relations and psychological wellbeing. "Through SafeSurf's initiatives, the TRA seeks to enable youths in the Kingdom of Bahrain by opening the innovative fields to promising talents to spread awareness among the community as well as encouraging students to achieve cyber culture in the field of cyber safety focusing on the effects of it on their day-to-day life." Says Sh. Abdulla bin Humood Al Khalifa, TRA's Director of Consumer Affairs and Media. Upon registration, online training sessions will become available to participants, aiming to help improve the skills required for the production of short films. The training will be presented by photography director Mr. Hamad Abdulla, winner of several international television series and programmes awards. The training sessions will illustrate techniques of photography, montage and filmmaking, to acquire special skills

needed to enhance the quality of application. Furthermore, the TRA has also opened registration for those wishing to join the judging panel. Applicants need to be experts and leaders in the following professions: film producers, film directors, narrators, scenario writers, film critics, social media experts, internet security experts, educationalists, and other related professions. Judges for the Cyber Safety Award will be selected based on their experience and level of expertise. (February 22, 2020) tra.org.bh

The Telecommunications Regulatory Authority (TRA) of the Kingdom of Bahrain held a workshop on the 5th of February, 2020 to shed light on the success of the national broadband network project and share its experience with other regulators from around the region. The National Broadband Network project was a key objective in the government's vision through the 4th National Telecom Plan. In simple terms, this project is the result of Batelco having been split into two separate entities which are independent of each other. The newly formed "BNET" is a wholesale organization managing Bahrain's Fixed Infrastructure. Batelco is one of the existing operators in the Kingdom that would lease this infrastructure, along with STC Bahrain and Zain Bahrain among other ISPs to offer retails services to end users. This led to the establishment of a new economic regulatory framework in line with Government's policy directions under the 4th National

Telecommunications Plan, changing the dynamics of competition in Bahrain from one based on infrastructure, to one based on the provision of innovative services as superfast broadband speeds become the gold standard across the local industry. As the first country in the MENA region to have successfully separated the incumbent into two entities and created an entirely new entity with the responsibility of providing all licensees' access to a single National Broadband Network, regulators from the GCC have expressed keen interest in benefiting from Bahrain's experience. Thus the TRA has organized this workshop for attendees including delegates from TRA UAE, CITC in Saudi, TRA Oman and CITRA in Kuwait. In a statement, Shaikh Nasser Bin Mohamed Al Khalifa, Acting General Director of TRA Bahrain said that, "the necessity for the national broadband network project to become a reality was very clear, as the link between ultra-fast internet and economic opportunities and possibilities were undeniable. Through careful consideration, we determined that the best way for Bahrain to ensure that the NBN project was indeed successful, and while capitalizing on its unique geographic characteristics which could avoid the need for unnecessary duplication of networks, the Authority proceeded with the development of a new regulatory framework that had at its core the invigoration of competition, the launch of innovative products and services and the ubiquitous fiber coverage of Bahrain". The TRA firmly believes that consumers and businesses will reap the rewards of this new framework, expecting operators to compete based on enhanced services, and for the impact of the new national broadband network to be felt for generations to come, across all sectors, serving as a major component in the Government's larger strategy of becoming a hub for ICT and a focal-point of innovation. The National Broadband Network project was a key objective in the government's vision through the 4th National Telecom Plan. In simple terms, this project is the result of Batelco having been split into two separate entities which are independent of each other. The newly formed "BNET" is a wholesale organization managing Bahrain's Fixed Infrastructure. Batelco is one of the existing operators in the Kingdom that would lease this infrastructure, along with STC Bahrain and Zain Bahrain among other ISPs to offer retails services to end users. This led to the establishment of a new economic regulatory framework in line with Government's policy directions under the 4th National Telecommunications Plan, changing the dynamics of competition in Bahrain from one based on infrastructure, to one based on the provision of innovative services as superfast broadband speeds become the gold standard across the local industry. As the first country in the MENA region to have successfully separated the incumbent into two entities and created an entirely new entity with the responsibility of providing all licensees' access to a single National Broadband Network, regulators from the GCC have expressed keen interest in benefiting from Bahrain's experience. Thus the TRA has organized this workshop for attendees including delegates from TRA UAE, CITC in Saudi, TRA Oman and CITRA in Kuwait. In a statement, Shaikh Nasser Bin Mohamed Al Khalifa, Acting General Director of TRA Bahrain said that, "the necessity for the national broadband network project to become a reality was very clear, as the link between ultra-fast internet and economic opportunities

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The Telecommunications Regulatory Authority (TRA) of the Kingdom of Bahrain announces that it has been awarded with the ISO 9001:2015 Certification by Bureau Veritas, a recognized world leader in testing, inspection and certification services. ISO 9001:2015 specifies requirements for a quality management system when an organization demonstrates its ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, and aims to enhance customer satisfaction through the effective application of the system, including processes for improvement of the system and assurance of conformity to customer and applicable statutory and regulatory requirements. Implementing ISO 9001:2015 requirements guarantees a globally recognized standards of internal management practices, increased efficiency and productivity in operations, consistent outcomes that are measure and monitored, and improved reporting and communications, to name a few benefits. Commenting on the certification, Director of Human Resources, Finance and Information Technology, Shaikh Mohamed Bin Salman Al Khalifa stated that "TRA is happy that it has met the requirements for ISO 9001:2015, and this reflects TRA's continual commitment towards adopting international best practices in quality management and excellence."
(February 11, 2020) tra.org.bh

The Telecommunications Regulatory Authority (TRA) of the Kingdom of Bahrain held a three day workshop starting from the 20th of January 2020. The workshop centered on drafting commercial contracts for members of the telecom industry. Attendees included legal teams from Mobile network operators Batelco, Zain & STC Bahrain. Some of the subjects that were covered during the three-day workshop included commercial contract interpretation, drafting techniques and contract terms to name a few. Dr. Jean Pierre Scerri, Acting Legal Affairs Director of the TRA commented on the workshop stating "It's important to bring legal professionals together from within the industry to keep pace with international best practices and share knowledge and experience. Workshops such as these allow a platform for dialogue and understanding perspectives from multiple stakeholders."
(January 29, 2020) tra.org.bh

Bangladesh

The Bangladesh Telecommunication Regulatory Commission (BTRC) claimed that the level of radiation by mobile phone towers was not harmful for human health and the environment. The telecom regulator made the claim following radiation tests on 70 mobile network sites last year at more than 10,000 sites in the country. "The standard permissible amount of radiation exposure from mobile network tower is below the level of international standards and BTRC guidelines. So, there's no reason to get scared," Brig Md. Shahidul Alam, Director General (SM) BTRC, assured the people citing a survey they conducted at a discussion meeting, held at a city hotel, on the tower radiation situation in the country, reports UNB. Echoing the same, BTRC Deputy Director Shamsuzzoha, said: "From a statistical point of view, the sample size may seem very small but we will continue to do such tests. As we use the same technology in all the towers, we are confident the results will not vary much in other sites." In his keynote paper, he said that radiation was generally of two types — Ionizing and non-Ionizing. "Ionizing radiation is harmful for health but mobile phone tower radiation is non-Ionizing. Xray is an ionizing radiation but with proper use it can even be helpful. So non-Ionizing radiation from mobile towers, microwave or television is not harmful at all," he said. According to the BTRC's report, radiation levels in the six districts last year were below the 2.10w/m2 (watts per square meter) mark, specified as a safety threshold by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). BTRC Commissioner Aminul Hasan said the organization had already conducted the mobile tower radiation survey and examined its effect in many places of the country, noting that such surveys would continue in future. He said "rumors" about tower radiation were "completely baseless", adding that the telecom regulator had already informed the government, private companies and building owners. "We've

asked [the stakeholders] not to take fright," he said. Hasan said the High Court had asked them to submit a report on this issue, which they would do soon. Professor Dr. Satya Prasad Majumder said the BTRC survey finding was very satisfactory. "Rumors regarding the tower need to be overcome. There's nothing to be afraid of," he said, urging the BTRC to continue the survey and take appropriate steps to eliminate public misperceptions on the issue. Brig SM Farhad Secretary General of the Association of Mobile Telecom Operators of Bangladesh, said, "We'll need more sites when 5G is introduced. So, there's no reason for halting technology just out of fear. This will cause us to fall behind."

(February 17, 2020) dhakatribune.com

With addition of 8.08 million new users last year, the total number of Bangladeshi Internet users reached about 100 million at the end of last December, the statistics of the country's telecom regulator showed. Telecommunication Regulatory Commission (BTRC) data showed that the number of subscribers in the country reached 99.428 million. Of the total subscribers, the BTRC data showed that there were 93.681 million mobile Internet users and 5.742 million broadband Internet users in the country while the rest of the connections are through WiMAX (Worldwide Interoperability for Microwave Access). The country's cell phone companies last year saw over 8 million new users to take the total subscribers base to 165.572 million at the end of last month. Bangladesh currently has four mobile companies, three of which are foreign-backed cell phone operators. The number of subscribers of mobile operators, Grameenphone, Robi Axiata, Banglalink and Teletalk stood at 76.462 million, 49.004 million, 35.239 million and 4.868 million respectively at the end of last year, BTRC data showed. (January 29, 2020) xinhuanet.com

Egypt

The government is planning to improve internet speed in Egyptian Universities, develop 35 automated test centers, and supply hundreds of computers and software systems, Higher Education Minister Khalid Abdel Ghaffar stated. The plan is a part of the first phase of the Smart Campus program, which is launched with total investments of EGP 1.4 billion, Abdel Ghaffar added. The Ministry focuses on the Artificial Intelligence (AI) and the digitalization of public Universities via the exploitation of technology, he revealed, according to the Middle East News Agency. The Minister denied that robots will be used in teaching in the new smart Universities, noting that the Ministry is developing the infrastructure of these Universities. The Ministries of Communications and Higher Education have joined forces to help raise a new generation

that can utilize opportunities provided by the Fourth Industrial Revolution, ICT minister Amr Talaat said.

(February 19, 2020) english.mubasher.info

Egypt's Financial Regulatory Authority (FRA) has confirmed that Saudi Telecom Company (stc) will be required to make an offer for the 44.94% of Vodafone Egypt currently held by Telecom Egypt, if it completes a proposed USD2.4 billion purchase of Vodafone Group's 54.93% stake in the Egyptian cellco. According to Reuters, which cites a letter released this week by Telecom Egypt, the FRA has stated that stc's offer to acquire the majority stake in Vodafone Egypt would be subject to a 1992 law requiring a mandatory tender for any outstanding shares. Commenting on

the matter, Telecom Egypt was reported as saying: 'Telecom Egypt is closely following the aforementioned potential transaction to consider all of its possible investment options and opportunities.' last week it was revealed that stc had signed a non-binding memorandum of understanding (MoU) with UK-based Vodafone Group to acquire the latter's 55% stake in Vodafone Egypt. The MoU is effective for a period of 75 days and can be extended with the mutual consent of both parties. The pair agreed on a cash consideration of USD2.392 billion for the UK group's shareholding in Vodafone Egypt, equivalent to an enterprise value for 100% of the company of USD4.350 billion; the final consideration will be determined upon signing of the definitive agreements.

(February 6, 2020) commsupdate.com

Iran

The Iranian internet service has suffered hours of disruption in what telecoms authorities say was the result of DDoS cyber-attack that was dealt with swiftly. A senior telecoms ministry official said that a "powerful" distributed denial-of-service (DDoS) attack that began 11:54 a.m local Iranian time on Saturday caused users to experience connection issues. Sajjad Bonabi said that the attack had affected several service providers in Iran, including two notable mobile operators. He said in a post on Twitter that the DDoS attack was dealt with immediately using the Iranian Information Technology Fortress, known as DEJFA. "Through an intervention by DEJFA and cooperation of colleagues in Infrastructure Company, the communications are now in a normal condition," said Bonabi who himself is the deputy head of Iran's Telecommunication Infrastructure Company. The official later posted another tweet saying that a last service provider affected by the attacks had reported normal conditions later on Saturday. DDoS attackers normally use hijacked or virus-infected computers to target websites. During such attacks, websites become unreachable after an unusually large number of requests for information are sent to them, causing the servers that host them to fail. Officials have yet to elaborate on the origin of the attacks and whether they had been motivated by political objectives. Twitter sources close to the communications ministry said the spoofed IP addresses from which the "highly distributed attacks" had been launched were from East Asia and North America. (February 9, 2020) presstv.com

Jordan

Réseaux IP Européens Network Coordination Centre (RIPE NCC), in partnership with the Telecommunications Regulatory Commission in Jordan (TRC), successfully hosted a series of workshops and training sessions aimed at increasing the awareness about IPv6 deployment in Amman, Jordan. The sessions, which took place recently at Le Royal hotel were attended by representatives from telecom operators, Internet Service Providers (ISPs), TRC and key stakeholders from the private sector. The sessions were aimed at educating participants about IPv6 deployment and other related topics. Two training courses were conducted over three days. A basic IPv6 training course, which discussed IPv6 adoption and deployment, and an advanced IPv6 training course, which looked at the similarities between IPv4 and IPv6 and how to make your network IPv6 ready. Maha Ziad Mouasher, Studies and Research Officer at TRC said: "TRC remains steadfast in its commitment to provide the much-needed support to further expand Internet connectivity and to enhance telecommunications services nationwide, including the efforts to promote IPv6 deployment. We are pleased at the success of this collaborative event with RIPE NCC and we look forward to working closely with them across future endeavors". Chafic Chaya, Regional Communications Manager at RIPE NCC said, "We are very pleased at the successful turnout of these training sessions in Amman, which was aimed at promoting the importance of IPv6 deployment, including the many benefits and advantages that it offers. We would like to extend our appreciation to the Telecommunications Regulatory Commission in Jordan (TRC) for the important role and engagement in the nation's transition to IPv6". The trainings and workshops fall in line with the RIPE NCC commitment towards supporting its members in the Middle East Region with technical expertise related to IPv6 deployment and other networking topics.

(February 5, 2020) zawya.com

The Jordanian Ministry of Digital Economy and Entrepreneurship (MoDEE) has migrated its ICT infrastructure to the cloud, as part of its ongoing digitalization process. The MoDEE completed the migration using Nutanix's enterprise cloud software. The move will help the Jordanian government provide a whole new range of online services to its citizens. "We don't like to call it e-government anymore; it's a digital transformation for Jordan, where we move to a digital economy – where we allow each and every service to be provided digitally and paid for digitally," said HE Mothanna Gharaibeh, Jordan's Minister of Digital Economy and Entrepreneurship. "This cannot happen without having everything on the cloud – quick and efficient. So Nutanix has indeed been a good partner in helping us to deliver this mandate." The MoDEE

is responsible for enabling the country's digital transformation for all of its public bodies and entities. Cloud computing will be the fulcrum upon which the country's digital economy is leveraged. Migrating to Nutanix's enterprise cloud platform has enabled the Jordanian government to trouble shoot a number of key snagging points and bottlenecks. "We had problems with updates, upgrades and expansions," explained Abdallah Al-Farrayih, MoDEE's operations manager. "After moving to the Nutanix Cloud, we could manage all of our infrastructure from a single location – storage, network, virtual machines, everything from a single dashboard,"

he added. The new sense of control is due to Nutanix's one-click infrastructure management console, Prism, which allows users to seamlessly and easily monitor all virtual environments running on AOS. The dashboard is designed to simplify and streamline common workflows, and to make hypervisor and VM management as easy as checking email, a Nutanix spokesman said. "With Nutanix, we can easily integrate with many platforms," Mr. Al-Farrayih added. "And we can use the built-in features in Nutanix related to security and backup."

(February 3, 2020) commsmea.com

Morocco

The National Agency of Telecommunications Regulation (Agence Nationale de Reglementation de Telecom, ANRT) has published its decision on the referral made by Inwi (Wana) against fixed line incumbent Maroc Telecom (registered as Itissalat Al-Maghrib, or IAM) for anti-competitive practices concerning the implementation of the country's local loop unbundling (LLU) regulations. After an in-depth examination of the various elements of the investigation report, which commenced in May 2017, the ANRT Management Committee concluded that Maroc Telecom's actions had prevented and delayed its competitors from accessing LLU and the fixed broadband market since 2013. The committee judged that the behavior constituted an abuse of dominant position, which is prohibited by the provisions of Article 7 of Law No.104-12 and is liable to a financial penalty of MAD3.3 billion (USD342.9 million), entirely paid to the Treasury. The ANRT will also compel Maroc Telecom to implement other measures or face daily fines in the event of non-compliance; the goal is to allow the development of competition in the fixed telephony

and fixed broadband segments. The ANRT first published the rules governing LLU in Morocco in June 2014. Under the new regulations, Maroc Telecom is required to provide colocation for third-party operators' equipment in its existing cabinets, install multi-operator cabinets for part of their future nodes and establish an active wholesale offer for third-party operators under a virtual unbundled local access (VULA) model. While Maroc Telecom was initially required to provide a technical and tariff wholesale offer for passive access to its fixed local loop by 1 August 2014, it was accused of failing to publish the required documents on numerous occasions. In January 2017 Inwi made a formal complaint to the ANRT over Maroc Telecom's failure to comply with the LLU regulations. The move follows a previous ANRT ruling against the incumbent (published in October 2016), which ordered Maroc Telecom to open up its fixed line network to alternative operators willing to provide LLU services; the regulator's move was prompted by a complaint filed by Orange Morocco (formerly known as Meditel). (February 3, 2020) commsupdate.com

Nepal

Nepal's telecoms regulator, the Nepal Telecommunications Authority (NTA), has revoked CG Telecom's license to provide limited mobility services (LMS) in seven districts after the operator failed to renew its permits within the stipulated timeframe. The move means CG Telecom, which currently provides the service in a total of 40 districts, will no longer be able to operate in Baglung, Palpa, Kanchanpur, Dadeldhura, Baitadi, Bardiya and Dailekh districts from 9 February. Under existing rules, operators are required to renew their license at least three months before their current authorization expires, although it can be done after this date on payment of a 15% fine. An LMS license enables a provider to operate mobile services within a specific area or region, as the SIM or number cannot be used elsewhere.

(February 7, 2020) commsupdate.com

The number of internet users in Nepal has increased by 2.5 million

in the past six months, according to the Nepal Telecommunications Authority. Around 18.6 million people were using the internet until mid-May last year. But, as of mid-November, the number rose to 21.1 million, according to a recent report of the regulatory body. In the recently launched Management Information System report, it is said the 71.52 per cent of the total population in Nepal is now connected to the internet. However, in reality, the number can be less considering that some of the subscribers have more than one internet connection. The report shows a significant rise in the numbers of fixed broadband and mobile internet users, says NTA director and spokesperson Min Prasad Aryal. As many as 13 million people use Nepal Telecom's service and 6.9 million people use Ncell. A total of 3.5 million people are using Wi-Fi and FTTH services collectively. Around 55.39 per cent of the population use mobile internet, out of which the majority use the 3G service.

(February 4, 2020) english.onlinekhabar.com

Nepal's telecoms regulator, the Nepal Telecommunications Authority (NTA), has issued its Interconnection Guideline 2019 setting out the maximum interconnection tariffs service providers can charge. From mid-March 2020, fees will be capped at NPR0.20 (USD0.00173) per minute for calls between two landlines, NPR0.10 for calls from a landline to a mobile, NPR0.20 for calls from a mobile to a landline and NPR0.10 for calls between two mobile networks. According to The Kathmandu Post, the NTA director Min Prasad Aryal hopes the lower interconnection charges will 'be passed on to the customers with operators decreasing their tariffs'.

(January 27, 2020) commsupdate.com

Oman

The Ministry of Technology and Communications (MTC) and Asyad Group have signed at the Ministry headquarters a Memorandum of Understanding (MoU) to coordinate and organize cooperation to leverage ICT in developing the logistics sector in the Sultanate. The MoU was signed by Dr. Salim bin Sultan Al Ruzaiqi, Chief Executive Officer, MTC and Abdulrahman Al Hatmi Chief Executive Officer, Asyad. Under this MoU, MTC and Asyad will cooperate to develop programmes and laps of the SaS Center for the 4th Industrial Revolution Technologies which will be launched later on throughout this year, to meet the requirements of the logistics sector in the sultanate as well as proposing solutions to the challenges faced by this vital sector. Additionally, MTC will provide technical consultancies in using 4IR technologies and will conduct training programmes for Asyad's professionals upon the establishment of the center by MTC IT experts and create a testbeds environment to serve the logistics sector. On the other hand, Asyad Group will contribute to the development of plans for the programmes to be offered by the center along with defining the focus areas of the logistic sector and will propose projects ideas which can be commercially viable. Furthermore, Asyad will facilitate conducting field experiments for the group subsidiaries and encourage them to take advantage of the provided services. Asyad will also implement a number of projects by contracting with SMEs working in the ICT field. "Believing in the importance of emerging technologies, specifically the technologies of the 4th IR such as artificial intelligence and internet of things in moving and accelerating the growth of various economic sectors, we are in the process of establishing technologies center of the 4th IR during this year. This partnership comes as part of the preparations for the operation and management of the center and activating its role in promoting these sectors," said Al Ruzaiqi. He added, "Through our cooperation with Asyad Group, we seek to build local capabilities in employing emerging technologies as well as to provide a technological environment equipped to implement pilot projects that serve this purpose." "Our partnership with the Ministry of Technology and Communications is instrumental in our strategy. For Asyad, employing leading-edge technologies is a key priority and a central competitive advantage to cement Oman's position as a global logistics hub. He added, "Asyad has always sought to adopt technological innovations and initiatives that efficiently contribute to boosting Omani ports' competitiveness; accelerating pre-clearance of imports and qualifying Oman to achieve advanced indicators in trade facilitation regionally and internationally. Currently, the Sultanate is ranked among the top five countries in the rate of inspection, thanks to Bayan Risk Management System." Al Hatmi also highlighted, "Asyad has recently launched a logistics technical advisory program aiming to provide services for individuals, start-ups, SMEs and enterprises. Over 2019, the program supported more than 36 individuals and entities with more than 65 consulting hours. Furthermore, 17 consultants who work with different logistic companies were registered in the program to provide this service."

(February 24, 2020) timesofoman.com

The Oman Telecommunications Regulatory Authority (TRA) has held a workshop to accelerate the development of 5G connectivity in the Sultanate, leveraging the latest technologies from around the world to spur national competitiveness in line with Oman Vision 2040. The workshop also witnessed the signing of a Memorandum of Understanding (MoU) between TRA and Huawei Tech Investment in Oman to collaborate in developing the local talent in the telecommunications sector in the country. The MoU comes in line with Huawei's commitment in the region to empowering local talents in the telecommunications sector as ICT has become a crucial growth engine for societies and many different industries. In addition, the workshop highlighted the expected benefits of 5G connectivity to local industries such as healthcare, logistics, transportation, education, and much more. By facilitating open dialogue with ICT industry pioneers the TRA aims to further support a local 5G ecosystem and develop innovative applications and business models for Oman. During the workshop, representatives from Omantel presented plans for commercializing 5G in partnership with the TRA. Experts from Ooredoo also shared plans for embracing Industry 4.0 applications using 5G infrastructure and devices. The TRA also welcomed global ICT solutions providers to the workshop to offer their views on 5G capabilities and recent international case studies. This included a deep-dive session on the logistics and transportation industry hosted by Huawei. In addition to being a key sector of the Omani economy, it is one where the benefits of 5G can be felt most keenly in enhancing the visibility and management of connected vehicles, devices, and goods. Key drivers for 5G deployment include increased network capacity, lower cost per gigabyte, and new business use cases. Experts have previously noted the correlation between a high level of digitization—which is bolstered by 5G—and economic growth, leading to higher GDP as well as national competitiveness. According to the latest Global Industry Vision 2025 report, the potential of 5G for individuals,

businesses, and society is enormous, with 58% of the world's population anticipated having access to 5G by 2025. The TRA has already begun preparations to enable companies to provide 5G services and to encourage investment in the sector. In the next four years, 4,400 stations are committed to being constructed by Omantel and Ooredoo. The latest 5G workshop builds on similar initiatives with government agencies and the private sector to plan 5G applications in preparation for network readiness.

(February 19, 2020) tahawultech.com

Total fixed telephone lines rose by 5.7 per cent to 592,196 by the end of December 2019, from 560,326 subscribers until the end of December 2018, according to the latest data released by National Centre for Statistics and Information (NCSI). Analogue fixed telephone declined by 0.8 per cent to 321,501 during the period under review. According to the NCSI report, the number of subscriptions (IP) lines surged by 18.4 per cent to 213,320

subscribers until the end of December 2019. Total lines of the integrated services digital network witnessed a rise by 3.1 per cent to stand at 49.011 lines, while the wireless fixed subscriptions declined by 5.4 per cent to reach 1563 lines. The total number of mobile subscribers fell by 0.9 per cent to 6.383 million until the end of December 2019, compared to December 2018. Out of this, post-paid mobile connections dropped by 2.2 per cent to 5,601,800. The total number of fixed internet subscribers increased by 12 per cent to 475,097 by the end of December 2019. Fixed broadband internet connections, which have more than 256 Kbit/s speed, including FTTH, DSL, internet leased lines, satellite and LTE service stood at 473,70 subscribers, while internet subscriptions, which have less than 256 Kbit/s speed, including mobile communication and internet, leased lines stood by 2077 subscribers. The number of active internet broadband subscribers stood at 4,604,314 subscribers.

(February 2, 2020) timesofoman.com

Pakistan

Pakistan Telecommunication Authority (PTA) has established a Consumer Support Center (CSC) with efficient and trained agents to facilitate telecom consumers. Chairman PTA, Major Gen. Amir Azeem Bajwa (R) launched the CSC. The aim of new CSC is to provide ease and facilitation to the public for lodging their complaints pertaining to telecom services. Consumers can register their complaints related to cellular mobile telephony, internet service providers, fixed/wireless telephony, Device Identification Registration and Blocking System (DIRBS), web content reporting (blasphemy, pornography etc.), UAN, Toll free, UIN and allocation of short/CVAS registration amongst others. The consumer only needs to provide their required information and details for the agent to quickly identify and respond to their queries/register complaints. On this occasion, PTA chairman said that PTA is well conversant about issues faced by telecom consumers. The launching of the CSC demonstrates the authority's commitment to innovation, deeper understanding of the consumers' needs and progressive-solutions-to-be-provided-to-them. Telecom consumers are encouraged to take up their complaints with their relevant service providers. In case a consumer's complaint is not addressed by the relevant telecom operator or they are unsatisfied, they may contact PTA CSC or launch complaint at PTA website for speedy redressal of their grievances. (February 22, 2020) app.com.pk

Pakistan Telecommunication Authority (PTA) in collaboration with GSM Association (GSMA) organized two days capacity building training course on "Leveraging Mobile to Achieve Sustainable Development Goals" at PTA Headquarters, Islamabad. The training course was attended by international participants from Nepal Telecom Authority (NTA) along with

representatives from Cabinet Division, Ministry of Information Technology & Telecommunication (MoIT), Ministry of Human Rights, National Commission on the Status of Women, Ministry of Federal Education and Professional Training (MoFEPT), State Bank of Pakistan (SBP), PTA, Frequency Allocation Board (FAB), Universal Service Fund (USF), Ignite, Pakistan Software Export Board, Engineering Development Board and 3G Technologies. International Workshop on Leveraging Mobile to Achieve Sustainable Development Goals (SDGs) The training course focused on gaining critical insights into the impact of mobile enabled services on sustainable development that included the effects of expanding mobile coverage in rural areas and the role of government and industry in closing the mobile broadband coverage gap. Mr. Michael Nique, Director of Research, Mobile for Development Department, GSMA delivered the course. He provided the participants with a greater understanding of strategies, policy frameworks & regulatory levers needed to maximize the impact of mobile on the implementation of national SDGs plans. Speaking on the occasion, Chairman PTA, Maj. General Amir Azeem Bajwa (R) said that the course proved to be a valuable experience, one which addressed the impact of mobile in achieving targets set under the SDGs. PTA is doing its utmost efforts alongside other stakeholders in supporting SDGs by bringing economic & social benefits of the mobile and internet to rural communities. The Chairman also thanked GSMA for this collaboration and assured of PTA's full support for future programmes and trainings. This course was delivered under the "PTA-GSMA Centre of Excellence Program for Regional Regulatory Training" under which one training course shall be conducted on the latest topics of telecommunications and ICTs in every quarter of 2020.

(February 2, 2020) phoneworld.com.pk

Saudi Arabia

In a first-of-its-kind initiative for the Kingdom, the Communications and Information Technology Commission (CITC) launched an open access agreement between all six telecommunications companies, guaranteeing the provision of broadband services through any subscriber-selected service provider, independent of infrastructure ownership. The agreement was signed by the CEOs of each of the telecoms providers, which included Saudi Telecom Company (STC), Saudi Mobily Company (Mobily), Mobile Telecommunications Company Saudi Arabia (Zain), Integrated Telecom Company (ITC), Dawiyat Integrated, and Etihad Atheeb Telecom (GO). The initiative aims to utilize the existing infrastructure, encourage competition, attract investment, and increase broadband subscriptions by improving service quality and consumer choice. During the signing ceremony, H.E. Dr. Mohammed Al Tamimi, Governor of the CITC, praised the initiative for its success in uniting the efforts of communications service providers under the new agreement. "By increasing access to broadband networks for individuals and businesses, this initiative will help further optimize our country's resources while building a cohesive digital community, in line with the Kingdom's ambitious plans." Dr. Al Tamimi added, "The adoption of an open access model will increase the use of Saudi's fiber-optic infrastructure through the development of commercial agreements that make it easier for subscribers to choose any provider they prefer" The governor also commended the level of cooperation between participating telecoms companies throughout the development of the open access initiative. The Kingdom's digital transformation has accelerated significantly since the launch of Vision 2030, with its ICT sector valued at $28.7 billion, the largest in the Arab world. According to the International Telecommunication Union, Saudi Arabia has an internet penetration rate of 93% versus the global average of 53%. Additionally, the Kingdom was the first adopter of commercial 5G technology in the region and the third largest globally and recently jumped 93 places to 12th in global rankings for internet speed, with an average download speed of 57.46 Mbps.

(February 23, 2020) citc.gov.sa

The Communications and Information Technology Commission clarified the details of the request to obtain a license to provide the services of virtual mobile communications network operators (MVNO) in the Kingdom, by publishing a document that answers the questions of the interested and making it available to the public through its official website. The Communications and Information Technology Commission (CITC) revealed more details about requests to obtain the license for new mobile virtual network operators (MVNOs) in the Kingdom, by publishing a document that answers inquires submitted by interested parties. The document, which is available on CITC's website, answered the most prominent questions about the license, including questions related to Consortium and Partners, FBP Host, Process and Evaluation, and MVNO Operations. The commission invited interested parties to submit applications according to the competition's requirements by May 10, 2020.

(February 17, 2020) citc.gov.sa

As part its continuous effort to improve Saudi domain names services (.sa or ‫السعودية.‬), The Communication and Information Technology Commission (CITC) updated the 'Saudi Domain Name Registration Regulation' to adopt the "Registry-Registrar" model, one of the most efficient practices in the domain name industry. The "Registry-Registrar" model allows registering Saudi domain names through accredited Registrars from the private sector. The new version of 'Saudi Domain Name Registration Regulation' included replacing the objections article with an article about Domain Name Dispute Resolution. As well as, adding an article about handling complaints, and other changes to support adopting the "Registry-Registrar" model. The Regulation also stated that registrants shall be bound by any revised terms and conditions as well as any additional terms and conditions in the Domain Name Registration Regulation, or any related regulations or procedures. CITC announced that these changes go into effect after (30) days of publishing the new version on SaudiNIC's website, and encouraged all registrants to update their information. As well as, updating the administrative and technical contacts' information for all their Saudi domain names, in preparation for any additional future changes, especially those in relation to domain name dispute resolution or fees.

(February 10, 2020) citc.gov.sa

Saudi Arabian fixed line and broadband operator Etihad Atheeb Telecom (GO Telecom) has received approval from the Capital Market Authority (CMA) to reduce its capital by 34.8% from SAR350.53 million (USD93.4 million) to SAR28.53 million, with its number of shares to drop from 35.05 million to 22.85 million. The CMA's authorization is conditional on the proposal being approved by the company's extraordinary general assembly and the completion of necessary procedures, the statement added. GO's board of directors recommended the capital reduction in January 2020 in order to offset 67.41% of total accumulated losses.

(February 5, 2020) commsupdate.com

Sri Lanka

Sri Lankan mobile data charges are the seventh lowest in the world Group Chief Operating Officer of Dialog Axiata PLC, Dr. Rainer Deutschmann said in Colombo. He said that due to the new tax initiatives that were offered to the Telco sector, Sri Lanka will be placed even lower : at the fifth position. He also said that this has also led to thin volumes of profit for them but they were content with the market space they were competing. Dialog Enterprise, the business solutions arm of Dialog Axiata PLC, also showcased its readiness to digitalize the financial sector of the country with cutting-edge solutions, further enhancing service offering to take its clientele on a steady growth trajectory. The company announced this preparedness to the finance industry at the annual fellowship organized for the Banking, Finance & Insurance sector under the theme 'Bridging the Digital Divide'. The event was held with the participation of CIOs, CTOs and IT Leads representing country's financial sector. The event featured the keynote delivered by Sachin Seth, Partner Digital, Fintech, Cloud & Tech.

Transformation Leader, EY Advisory (Africa, India & the Middle East). Highlighting the salient role telcos play in the digitalization drive of the financial sector, Sachin stated, "embracing a strategic, forward-looking business model is critical to survival and growth. Considering the maturity of mobile telecom companies in Sri Lanka, and their wider reach and penetration in comparison to the banking industry, there remains potential for Last Mile payment services gaining even greater traction in the country". In addition, he also discussed how telecos actively engage in serving financial service companies by bringing together services and providing innovative customer experiences." A panel discussion with Group Chief Operating Officer of Dialog Axiata PLC, Dr. Rainer Deutschmann, The Chief Information Officer of Hatton National Bank PLC Ruwan Bakmeedeniya, General Manager of LFSBL Mihindu Rajaratne and The Chief Information Officer of Seylan Bank Harsha Wanigatunga was also held.

(February 1, 2020) dailynews.lk

United Arab Emirates

The Telecommunications Regulatory Authority (TRA) of the Kingdom of Bahrain held a workshop on the 5th of February, 2020 to shed light on the success of the national broadband network project and share its experience with other regulators from around the region. The National Broadband Network project was a key objective in the government's vision through the 4th National Telecom Plan. In simple terms, this project is the result of Batelco having been split into two separate entities which are independent of each other. The newly formed "BNET" is a wholesale organization managing Bahrain's Fixed infrastructure. Batelco is one of the existing operators in the Kingdom that would lease this infrastructure, along with STC Bahrain and Zain Bahrain among other ISPs to offer retails services to end users. This led to the establishment of a new economic regulatory framework in line with Government's policy directions under the 4th National Telecommunications Plan, changing the dynamics of competition in Bahrain from one based on infrastructure, to one based on the provision of innovative services as superfast broadband speeds become the gold standard across the local industry. As the first country in the MENA region to have successfully separated the incumbent into two entities and created an entirely new entity with the responsibility of providing all licensees access to a single National Broadband Network, regulators from the GCC have expressed keen interest in benefiting from Bahrain's experience. Thus the TRA has organized this workshop for attendees including delegates from TRA UAE, CITC in Saudi, TRA Oman and CITRA in Kuwait. In a statement, Shaikh Nasser Bin Mohamed

Al Khalifa, Acting General Director of TRA Bahrain said that, "the necessity for the national broadband network project to become a reality was very clear, as the link between ultra-fast internet and economic opportunities and possibilities were undeniable. Through careful consideration, we determined that the best way for Bahrain to ensure that the NBN project was indeed successful, and while capitalizing on its unique geographic characteristics which could avoid the need for unnecessary duplication of networks, the Authority proceeded with the development of a new regulatory framework that had at its core the invigoration of competition, the launch of innovative products and services and the ubiquitous fiber coverage of Bahrain". The TRA firmly believes that consumers and businesses will reap the rewards of this new framework, expecting operators to compete based on enhanced services, and for the impact of the new national broadband network to be felt for generations to come, across all sectors, serving as a major component in the Government's larger strategy of becoming a hub for ICT and a focal-point of innovation. (February 19, 2020) tra.gov.ae

The Telecommunications Regulatory Authority (TRA) of the United Arab Emirates (UAE) is expecting the country to be the first market in the Middle East to begin using higher frequency mmWave spectrum for 5G services. A report from TechRadar cites Tareq Al Awadi, executive director of spectrum management at the TRA, as saying: 'Our goal is to allocate 26GHz this year, mainly for Dubai Expo 2020, as the system is available'. The

Dubai Expo 2020 event begins in October this year. The UAE's two cellcos – Etisalat and Du – currently offer 5G services using 3.5GHz frequencies. (February 14, 2020) commsupdate.com

The 26th meeting of the Arab Spectrum Management Group (ASMG), hosted by the Telecommunications Regulatory Authority (TRA), launched from February 9th to 11th at the Four Seasons Hotel in the capital Abu Dhabi, prior to the 5th MENA Spectrum Management Conference, which takes place on February 12-13. The importance of hosting this meeting lies in it being the first meeting following the World Radiocommunication Conference 2019 (WRC-19). The meeting aims to review the results of WRC, start a new post-conference action plan, identify new working groups and distribute all agenda items that were adopted during the conference to mini groups, in addition to distributing ASMG roles and tasks to ITU study committees and working groups. H.E. Hamad Obaid Al Mansouri, TRA Director General, welcomed the participating Arab delegations, and said: "In light of the significant acceleration towards digital data and IoT, the importance of frequency spectrum is more evident than ever as it is the necessary element to meet the needs of the next phase, and this requires forward-looking strategies to be implemented in a participatory manner and by regional and global cooperation. In this context, the UAE, under the guidance of its wise leadership, works by hosting various Arab meetings to coordinate with Arab states and activate all channels of cooperation among them, thus achieving sustainable development goals in the Arab world and promoting the well-being and happiness of its people." His Excellency stressed his confidence that the ASMG meeting will yield results that strengthen the telecommunications sector in Arab countries, adding: "The meeting of the ASMG comes in preparation for the MENA conference, which kicks off on the day following the conclusion of the ASMG meeting in Dubai. Outputs of the ASMG meeting will have a significant impact in strengthening the position of Arab countries and protecting their interests in the spectrum sector. The significance of this meeting stems from the exceptional vitality of the ICT sector, which has become the central hub of development and progress in various fields according to several prospective studies that monitor the future of humanity in the years and decades to come. If the telecommunications sector is this important, the spectrum system lies at the heart of this importance in terms of being a vital natural resources of the countries, as well as in terms of overlapping with many of the economic, social and security considerations." During the meeting, participants will review the ASMG leader report on WRC results. They will also review ASMG's action plan and mechanism until the next WRC. Working groups, group leaders and agenda coordinators will be identified during the current study session until the date of the next WRC. The meeting is expected to develop a draft agenda for the next meeting, specifying its location and time, as well as to discuss technical standards development and regulatory matters of modern radio technologies. The meeting will also address the UAE's 5G strategy and its role in drawing up a roadmap to accommodate and implement 5G over the next few years, in addition to presenting the frequencies foresight plan in the UAE. Arab countries attained five leading positions during WRC-19 as follows: Dr. Omar Badawi was appointed president of the WRC, Eng. Tariq Al-Awadi appointed as vice-president of the WRC and leader of the ASMG, Eng. Sultan Al-Baloushi as head of Working Group A4 on the discussion of IMT-related matters, Eng. Ahmed Amin (UAE) as chairman of Working Group 5A on satellite service topics, and Eng. Mohamed Suleiman (Egypt) as chairman of Working Group 5B dealing with items related to satellite services. (February 9, 2020) tra.gov.ae

REGULATORY ACTIVITIES BEYOND THE SAMENA REGION

Australia

The Australian Competition and Consumer Commission (ACCC) has issued a call for feedback on 'any competition issues associated with an upcoming spectrum allocation which will impact rollout of 5G services across the Australian economy'. In a press release the regulator revealed that it has been asked to advise the country's communications minister on whether limits should be imposed on an upcoming auction of spectrum in the 26GHz band and, if so, how such limits should be applied. With the Australian Communications and Media Authority (ACMA) scheduled to conduct the sale process in early 2021, the ACCC is seeking views on: the likely demand for 26GHz spectrum licenses; the potential uses for these frequencies; the markets where the spectrum will be used; and any competition issues associated with how this spectrum is allocated. In addition, it is also seeking feedback on potential competition issues associated with the allocation of licenses for spectrum in the wider 26GHz-28GHz band. According to the ACCC, in developing its advice to the minister, it will consider the government's 'Communications Policy Objectives for the Allocation of the 26GHz band', published in October 2019, and will work closely with the ACMA. Submissions from interested parties are being accepted until 27 March 2020, with the minister reported to have requested the ACCC's advice by mid-May 2020. (February 26, 2020) commsupdate.com

Belgium

Belgian regulator BIPT has proposed a solution to the impasse over spectrum licenses in the country. The existing 2G and 3G licenses expiring next year would be extended for six months, and the regulator will issue temporary licenses for the 3.5 GHz band, without an auction, to allow operators to start launching 5G services. BIPT started work on a spectrum auction back in 2018, but the sale has been delayed by elections last May and political disagreements over the distribution of proceeds among Belgium's three regions. However, an interim solution is needed, as the GSM licenses for the 900 and 1,800 MHz band and UMTS licenses in the 2,100 MHz band will expire in March 2021. An update of the electronic communications law, as well as a various royal decrees are needed in order to fix the terms of any auction and new licenses. Several months would be needed in order to pass such legislation. The former government approved the legal changes in July 2018, but there is not yet a new federal government to take up the legislation. The BIPT has concluded it's unlikely to be able to hold an auction before the end of 2020. In order to ensure the continuity of services, it recommends the acting government extend the existing 2G and 3G licenses under the same terms for six months. The public interest would give the government the authority to act, and the regulator already held a public consultation on the proposal. The country also faces the EU deadlines of 01 July 2020 to distribute the first 5G spectrum licenses in the 700 MHz band and 31 December 2020 to award the 3.5 GHz range. Belgium's failure to submit plans on these frequencies has prompted a procedure from the European Commission for potential violations. EU obligations aside, the BIPT said there is an economic interest in starting 5G services, with multiple industries looking to adopt the technology and neighboring countries already issuing licenses and offering the services. The regulator proposes awarding part of the spectrum under preliminary licenses based on the existing telecom law. This gives BIPT the right to award temporary rights for frequencies that are not yet the subject of legal award procedures. The BIPT has already published a communication on the proposed licenses and called for applications from interested parties by the end of February. After receiving the applications, it will work out a procedure for issuing the national licenses, in order to limit any further delays to the start of 5G services, the regulator said.

(February 3, 2020) telecompaper.com

Brazil

Brazil's National Telecommunications Agency (Agencia Nacional de Telecomunicacoes, Anatel) has revoked the mobile termination rates (MTRs) set for the period between 2020 and 2023 – as established in December 2018 – and replaced them with lower interconnection charges. The regulatory change of heart follows appeals from a number of operators, including Claro Brasil. The America Movil (AM)-backed telco had argued that Anatel had used 'inaccurate' data in its calculations, and the figures would have a heavy impact on its unlimited tariffs. As per Analysis 6/2020, the regulator has now redefined the MTRs for each of the country's three operating regions. The 2020 MTR for Region 1 has now been reduced from BRL0.01863 (USD0.00429) per minute to BRL0.01338, while the Region 2 2020 MTR has been lowered from BRL0.02128 per minute to BRL0.01503, with Region 3 rates decreasing from BRL0.04342 to BRL0.02687. MTRs for all Regions are scheduled to increase slightly between now and 2023, although the rates remain far lower than those initially established in 2018. The new 2020 MTRs will take effect on 25 February.

(February 19, 2020) commsupdate.com

Brazil's National Telecommunications Agency (Agencia Nacional de Telecomunicacoes, Anatel) has initiated a public consultation regarding its planned 5G spectrum auction. The consultation was launched on 6 February and will run for 45 days. The auction process, which was recently approved by the Brazilian Ministry of Science, Technology, Innovations and Communications (Ministerio da Ciencia, Tecnologia, Inovacoes e Comunicacoes, MCTIC) will include spectrum in the 700MHz, 2300MHz, 3.5GHz and 26GHz bands. Key items included in the new consultation include the provision of extra 3.5GHz frequencies, which will be restricted to regional operators. The watchdog notes: 'With the addition of more bandwidth, in what will be the main band for the development of 5G [i.e. 3.5GHz], it will be possible to meet more comprehensively the demands that were presented, especially those of the Prestadoras de Pequeno Porte (PPP – 'small providers'), which may be part of the development of this new technology.' Other details under discussion relate to the proposed make-up of the spectrum blocks on offer, i.e. whether to divide the 26GHz band into 400MHz blocks (five national and three regional) or 200MHz blocks (ten national and six regional). In addition, existing 700MHz license holders are expected to be prohibited from bidding on the 2×10MHz block of spectrum in that band.

(February 11, 2020) commsupdate.com

The Brazilian Ministry of Science, Technology, Innovations and Communications (MCTIC) has published a set of guidelines for the country's imminent 5G spectrum auction in the Federal Official Gazette. The auction – which will be staged by the National Telecommunications Agency (Anatel) – will include spectrum in the 700MHz, 2.3GHz, 3.5GHz and 26GHz bands.

The MCTIC's guidelines include:
- Mandated 4G access in all rural towns with a population greater than 600.
- Coverage of all federal highways with mobile broadband.
- The deployment of fiber-optic transport networks in all municipalities not yet served.
- Encouragement to share active and passive infrastructure, including towers, ducts and conduits.
- The establishment of 'activation deadlines' to ensure the prompt rollout of services, with a provision for unused spectrum to pass to third parties if the conditions are not met.

In addition, the document defines criteria for the protection of users who currently receive free satellite TV signals in the C band, which is adjacent to the 3.5GHz band. Winning bidders of the 3.5GHz band must meet any costs associated with eliminating interference. (February 6, 2020) telecompaper.com
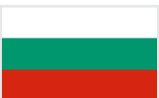
Bulgaria

Telecoms regulator the Belgian Institute for Postal Services and Telecommunications (BIPT) has announced plans to make the remaining free spectrum in the 2600MHz band available for auction. The decision is in response to a request for a license in the band from an unnamed company and increasing market demand for spectrum. The allocation of this spectrum is based on the Royal Decree of 22 December 2010 on radio access in the 2500MHz-2690MHz frequency band, as well as the current Article 30 of the Electronic Communications Act of 13 June 2005. Spectrum in this frequency band was initially put up for auction in 2011 during the country's first 4G auction, but one block of 15MHz duplex (2520MHz-2535MHz/2640MHz-2655MHz) remained unsold. No additional legislative action is required to make the free spectrum available through a new auction and the holder of this final license, which will be valid for 15 years from 2020 to 2035, will be able to set up a national 2600MHz network. The spectrum cap of 2×20MHz means existing license holders in this band are excluded. Proximus and Orange already have 2×20MHz in this band and Telenet 2×15MHz. The minimum price for the license is EUR15.01 million (USD16.3 million) and will not be subject to specific coverage conditions.

(February 21, 2020) telecompaper.com

China

China's Ministry of Industry and Information Technology (MIIT) has urged major telecom operators to timely assess the impacts of the coronavirus outbreak and quicken construction on the 5G network. Telecom companies should optimize construction plans of the 5G network and fully utilize its role in stabilizing investments and spurring the development of the related industrial chain, according to a statement released after a work conference of the MIIT. Boosted by the news, 5G-related shares rose across the board. China has extended the use of 5G technology in the ongoing battle against the epidemic, with wide applications in work resumption, long-distance disease diagnosis and temperature checking in transport networks. The ministry said businesses should capitalize on business opportunities in sectors such as online education and health services to promote information consumption. China green lighted the commercial use of the superfast wireless technology in June last year, triggering a surge in consumer enthusiasm and an acceleration in industrial investment. Leading telecom operator China Unicom said Sunday it will work with China Telecom to finish the construction of 250,000 5G base stations across the country by the end of the third quarter. (February 25, 2020) pakobserver.net

China issued 5G spectrum licenses to China Telecom, China Unicom and China Broadcasting Network (CBN), allowing the three to share the 3.3GHz to 3.4GHz band for indoor coverage. The Ministry of Industry and Information Technology's (MIIT) move to allow use of public mobile frequencies by more than a single enterprise aims to encourage joint construction and sharing of 5G infrastructure. In September 2019, China Telecom and China Unicom agreed to team on building and maintaining 5G RANs across the country, to accelerate deployment and slash associated costs. CBN, a state-owned national cable TV operator, plans to invest CNY250 million ($35.8 million) to deploy 5G service in 16 cities including Beijing, Shanghai, Guangzhou and Shenzhen. It was granted a commercial 5G license in June 2019 together with the country's three major mobile operators. China Telecom and China Unicom received 100MHz in the 3.5GHz band, while market leader China Mobile obtained 260MHz in the 2.6GHz and 4.9GHz bands. The allocation of spectrum in the 3.3GHz to 3.4GHz band aims to reduce China Mobile's advantage in overall spectrum holdings. (February 11, 2020) mobileworldlive.com

Colombia

The Colombian government has created a new regulatory body which will hold the responsibility for monitoring the ICT, postal and audiovisual sectors. The Communications Regulation Commission (Comision de Regulacion de Comunicaciones, CRC) was launched on 3 February, in accordance with the Law of Modernization of the ICT Sector (Law 1978 of 2019). (February 6, 2020) commsupdate.com

Croatia

a source from the regulator told Hina. A national task force coordinated by Hakom will now select the tools and set out criteria for manufacturers and equipment suppliers wishing to work in Croatia. Domestic operators will be able to procure equipment and products from any manufacturer that satisfies the criteria. (February 4, 2020) telecompaper.com

Croatia's Agency for the Protection of Competition (Agencija za zastitu trzisnog natjecanja, AZTN) has approved Tele2's proposed sale of its Croatian business to United Group which was first announced on 31 May 2019. A formal approval is expected to be published in the coming weeks, with the EUR220 million (USD242 million) deal then due to complete in the next few months. Tele2 Croatia is the smallest of the country's three mobile network operators (MNOs),

behind Hrvatski Telekom (HT) and A1 Hrvatska. (January 31, 2020) commsupdate.com

The Croatian government has chosen the country's fourth-largest city Osijek as the site for the first live 5G networks. Authorities say that services will be launched in Osijek by the end of this year, allowing it to meet the terms of the EU's 5G Action Plan, which was published in 2016. All three cellcos in Croatia have welcomed the plan. Hrvatski Telekom (HT) says it has already set up eight trial 5G base stations in the city, demonstrating its first 5G video call there last September. Tele2 called on the regulator, the Croatian Postal & Electronic Communications Agency (HAKOM), to allocate 5G spectrum in the second half of the year to support the development of the new technology. (January 26, 2020) commsupdate.com

Czech Republic

Jaromir Novak, Head of the Czech Republic's telecoms watchdog, announced his resignation, as a dispute over government changes to the country's planned 5G auction intensified. Novak published his resignation letter on Twitter, stating last-minute government changes to the Czech Telecommunication Office's sale of 5G suitable frequencies risked slowing the rollout of the technology and could lead to court disputes. The regulator was due to commence sales of frequencies in the 700MHz and 3.5GHz bands via auction this month, but the process has now been delayed to later this year as conditions are finalized. Novak took issue with the government's heavy emphasis on national roaming, which would allow consumers to switch between providers in the 3.5GHz band, arguing the frequency cannot be used across the whole country. "I cannot sign under auction conditions that in my deep conviction will not improve the competitive environment in the Czech market," Novak wrote. In response, Reuters reported the country's industry minister Karel Havlicek said in a televised address the government had made the changes to boost the attractiveness of the auction, as it had zero interest from overseas companies and minimal attention from domestic operators. He also claimed Novak had in fact been fired, with Hana Tovarkova, a member of the regulator's board, replacing him.

(January 28, 2020) mobileworldlive.com

Finland

Feedback on proposals related to the allocation of mobile suitable spectrum in the 26GHz band are being sought by both Finland's Ministry of Transport and Communications (MoTC) and the Finnish Transport and Communications Agency (Traficom). For its part, the MoTC is seeking feedback on the proposed terms for an auction of 26GHz frequencies, with the ministry confirming its intention to offer three 800MHz blocks in the band, with a starting price of EUR7.0 million (USD7.7 million) per block. Under the plans, the spectrum auction would take place in the summer of 2020, with the licenses on offer – which will cover the Finnish mainland – expected to be valid until 31 December 2033. The MoTC also noted that it is proposing that the lower part of the 26GHz band (i.e. 24.25GHz-25.10GHz) be excluded from the auction, with these frequencies to be held back for the construction of 'local networks'. Comments on the MoTC's plans are being accepted until 20 June 2020. Meanwhile, Traficom is inviting comments related to both the 'auctioning of the 26GHz range allocated for 5G networks and on technical license conditions'. In a press release regarding the matter, the body specifically said it was seeking feedback on 'Traficom Regulation 64C' and the related explanatory notes concerning the auctioning of the 26GHz range, with a deadline of 6 March 2020 having set for submissions.

(February 10, 2020) commsupdate.com

France

French telecoms regulator Arcep has revealed that four companies have submitted applications for the allocation of frequencies in the 3.4GHz-3.8GHz band in mainland France, namely Bouygues Telecom, Free Mobile, Orange France and Altice France (previously SFR). All four candidates have requested the allocation of one of the four 50MHz blocks that will be awarded in exchange for optional commitments set forth in the procedure. According to Arcep's 5G auction's terms and conditions, the optional commitments include: the provision of 5G services that foster competitiveness in other sectors of the French economy; improved coverage inside buildings (including multi-operator coverage); fixed access offers over the mobile network; greater transparency regarding deployment forecasts and their breakdown; and improved MVNO hosting. Arcep will now examine the applications and draw up a list of qualified applicants for the 50MHz blocks. Bidders for the frequencies still available after the allocation of the 50MHz blocks will be subject to a selection procedure (by financial criteria) which will take place in April, so that the authorizations are issued in June 2020 at the latest. In December 2019 the government set the price of the 50MHz blocks of 3.4GHz-3.8GHz spectrum at EUR350 million (USD386 million), while the additional blocks of 10MHz will cost EUR70 million.

(February 27, 2020) commsupdate.com

Greece

The Hellenic Telecommunications & Post Commission (Ethniki Epitropi Tilepikoinonion kai Tachydromeion, EETT) has opened a consultation into the planned award of 5G wireless spectrum. The regulator says it plans to offer 15-year licenses in the following bands: 700MHz (six blocks of 2×5MHz); 2100MHz (twelve blocks of 2×5MHz, of which three are free and nine are allocated but expire in 2021); 3.4GHz-3.8GHz (up to four blocks of between 100MHz and 150MHz); 26GHz (assignment to be determined according to the results of the consultation). The consultation is open until 10 March. (February 14, 2020) commsupdate.com

The Greek government has extended its broadband subsidy offer to business users. The voucher scheme was launched for residential users last year, providing a subsidy towards the initial set-up costs and monthly fees for a maximum of 24 months, with the aim of improving the penetration of fiber-based networks. Under the EUR50 million (USD55 million) Superfast Broadband (SFBB) project small and medium-sized businesses will be offered a subsidy of EUR360 per connection. (February 12, 2020) commsupdate.com

Honduras

The National Telecommunications Commission (Conatel) has indicated that it is poised to free up the 3.5GHz band for mobile use, as it seeks to 'deliver the benefits of regional harmonization with other Latin American countries.' In freeing up the band, the regulator has identified international roaming, spectrum optimization, investment cost and implementation time as its key priorities. Spectrum in the 3.3GHz-3.7GHz range will be designated for mobile use, while frequencies in the 3.7GHz-3.8GHz range will be earmarked for fixed-wireless broadband use. The spectrum will be auctioned via a public tender, although no date has been disclosed.
(February 4, 2020) commsupdate.com

Hong Kong

Hong Kong's Office of the Communications Authority (OFCA) has awarded contracts for five of the six remote areas where it was seeking operators to deploy fiber-based networks to improve rural connectivity. The scheme covers 235 villages across the six regions and will also involve the deployment of three submarine cables connecting Lamma Island to Hong Kong Island, Cheung Chau to Lantau Island, and Peng Chau to Lantau Island. The regulator has selected HGC Global Communications to manage the subsidized rollout in Regions 1, 3 and 4, while HKT will cover Regions 2 and 5. No applications were received for Region 6 (Lantau Island, Cheung Chau and Peng Chau) and OFCA re-opened the tender for this region at the end of January.
(February 11, 2020) commsupdate.com

India

Bharti Airtel, Vodafone Idea and Tata Teleservices Limited (TTSL) have submitted part payment of dues related to the Supreme Court's October 2019 decision on Adjusted Gross Revenue (AGR. The trio owe a combined total of around INR1.02 trillion (USD14.3 billion) – the lion's share of a total bill of around INR1.47 trillion issued to providers – in backdated license and spectrum fees, with payment due on 23 January 2020. With the exception of Reliance Jio Infocomm (Jio) – which reportedly cleared its comparatively small bill of INR1.95 billion before the deadline – the affected providers had not paid anything towards the bill whilst they waited for permission from the apex court to arrange a payment schedule with the Department of Telecommunications (DoT). The DoT, for its part, had opted not to take coercive action against the telcos – again awaiting clarification from the court. In its most recent ruling, however, the Supreme Court refused to allow any additional time for the companies to pay the bill, holding a DoT official in contempt of court and threatening the executives of the providers with similar punishments for failing to comply with the original October 2019 order. The providers were advised to submit at least a portion of the demanded funds immediately to avoid further action. To that end – and with no sign of any relief from the Supreme Court – the operators submitted an initial tranche of funds: Airtel paid INR100 billion towards its bill of roughly INR356 billion; Vodafone Idea submitted INR25 billion, with an extra INR10 billion to be paid by the end of the week, of a total bill of around INR530 billion; and TTSL paid INR22 billion, which it believes to be the entirety of its outstanding AGR dues, although the government holds that TTSL owes INR138 billion in fees, penalties and interest. The Supreme Court's apparent inflexibility with regards to the enforcement of the AGR order has sparked concerns in the nation's financial sector that the demand may force the collapse of Vodafone Idea; senior officials at the telco have warned on several occasions that it would be forced to close down if the government offered no relief. Looking to assuage concerns, the Reserve Bank of India (RBI) has said that it is 'very closely monitoring' the fallout of the crisis and the potential impact on lenders if any of the telcos were to default. Government Ministers, meanwhile, have yet to coordinate their responses to the crisis. Speaking on behalf of the state-owned utility firms that have been issued AGR-related demands by the DoT, Oil Minister Dharmendra Pradhan asserted that the notices were issued 'due to some communication gap' and holds that the public sector undertakings (PSU) are not liable for the dues. The Supreme Court dismissed a petition from the PSUs related to the orders, instructed them to challenge the notices elsewhere. The Finance Minister,

Nirmala Sitharaman, on the other hand said she would hear the telecom ministry's stance on the matter before making a statement. (February 18, 2020) The Economic Times

Local governments in fewer than half of India's 36 states and Union Territories have aligned with the Right of Way (RoW) rules issued by the Department of Telecommunications (DoT) in 2016, the Economic Times writes, citing industry group the Tower and Infrastructure Providers Association (TAIPA). According to the group just 16 states have aligned their policies with the RoW rules, potentially jeopardizing the rollout of critical tower and fiber infrastructure, with TAIPA noting that around 100,000 more towers are needed to 'provide quality services and cater for an active subscriber base of more than a billion consumers'. The RoW rules provide a standardized framework for licensees to apply for permission from local authorities for the installation of infrastructure, with a view to

simplifying and streamlining the process. However, the rules have not been widely adopted at a state level according to TAIPA. Highlighting the problem, TAIPA pointed out that the Karnataka government has introduced its own telecom infrastructure policy that is completely misaligned with the DoT's RoW policy, featuring fees up to ten times higher than those set out by the telecom ministry and excluding any stipulations regarding the timeframe for an application to be processed. In a more positive development, meanwhile, the DoT has amended the terms of unified access service licenses to allow for the deferment of spectrum payments due in the in financial years ending March 2021 and March 2022. The government had greenlit the two-year moratorium on spectrum payments in November last year to ease the current financial burden on telcos and allow providers to recover from a bruising three-year price war.
(February 10, 2020) commsupdate.com

Italy

The Italian government is urging Telecom Italia (TIM) and the owners of wholesale network operator Open Fiber to reach an agreement on the combination of their respective fixed broadband infrastructure. The two telcos have been discussing a tie-up since last year with a view to creating a single national fibre network, something the government sees as a strategic national asset, but negotiations appear to have stalled. Italy's Economy Minister Roberto Gualtieri is cited by Reuters as saying: 'The government encourages constructive discussions among parties to set conditions to integrate existing assets'. TIM is looking for investment partners to provide funding to help it acquire a 50% stake in Open Fiber from utility group Enel, though reports suggest that Enel's CEO Francesco Starace is keen to hang onto the unit. The remainder of Open Fiber is owned by state lender Cassa Depositi e Prestiti

(CDP), which also has a stake in TIM. US investment firm KKR has been named as a potential funding partner for TIM. (February 27, 2020) commsupdate.com

The Communications Regulatory Authority (Autorita per le Garanzie nelle Comunicazioni, Agcom) has opened a procedure to evaluate coverage obligations for the 5G network sharing venture involving Wind Tre and Fastweb. Under its 3.7GHz concession won at auction in October 2018, Wind Tre must offer coverage of at least 5% of the population of each Italian region within 48 months from the award of the license. The regulator is now assessing whether these coverage obligations should be altered in light of the infrastructure sharing deal signed by the two operators in June last year. Mondo Mobile Web says Agcom's investigation will take up to 120 days. (February 21, 2020) commsupdate.com

Kazakhstan

The Government of Kazakhstan, the International Telecommunication Union (ITU) and the United Nations Children's Fund (UNICEF) agreed to collaborate on GIGA, a UNICEF-ITU global initiative to connect every school to the Internet and every young person in Kazakhstan to information, opportunity and choice. Launched in 2019, GIGA sets the goal of providing connectivity to every school in the world. Some 3.7 billion people in the world do not have access to the Internet, of whom 360 million are young people. A lack of access to the Internet means children and young people are excluded from the wealth of information available online, limiting their resources to learn and to grow, and to fulfill their potential. Closing the digital divide requires global cooperation, leadership, and innovation in finance and

technology. "The joint UNICEF-ITU global initiative GIGA aims to bridge the digital divide between urban and rural education. It is important to note that providing remote villages with broadband Internet access is one of the most central areas of the work of our ministry," said Askar Zhumagaliyev, Minister of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan. "Telecom operators have laid thousands of kilometers of fiber-optic communication lines to villages. Within the framework of this project alone, we provided access to high-speed Internet for 446 rural schools, and by the end of this year there will be 1,342 such schools. Therefore, supporting GIGA is a logical step for us to further expand the access of rural schoolchildren of Kazakhstan to online educational

resources," he concluded. According to ITU, the official source for global ICT statistics, nearly 80 per cent of the population in Kazakhstan uses the Internet, but the figure across the Commonwealth of Independent States (CIS) region ranges between 21 per cent and 81 per cent. Kazakhstan is among the countries with the highest level of mobile-broadband penetration in the CIS region. The country is also a regional leader in access to computers and offered the lowest price per gigabyte of all CIS countries with capped entry-level fixed-broadband plans in 2017. "This partnership with the Government of Kazakhstan is integral to our acceleration of GIGA – as a lead country in this first phase of a global rollout, Kazakhstan will lay the groundwork for new financing models, partners and digital tools – and ultimately opportunity and choice for every young person. This work is critical to closing the digital divide in Central Asia and around the world," said Arthur van Diesen, UNICEF Representative in Kazakhstan. "ITU's exciting new joint project with UNICEF stems from my cast-iron conviction about the importance of empowering young people," said Doreen Bogdan-Martin, Director ITU Telecommunication Development Bureau. "Kazakhstan's commitment to school connectivity is one of the government's most important and far-reaching decisions, because it is the youth of today who will drive the next wave of digital

progress. Furthermore, the GIGA project contributes to the ITU Connect 2030 Agenda, which among others, aims to bridge the digital divide and provide broadband access to all."

What is GIGA?

GIGA has four pillars: map every school in the world, finance a common bid that can aggregate connectivity demand, connect every school to the Internet, and empower young people with digital skills for the future. GIGA is aligned with Kazakhstan's digitalization and connectivity vision, the country's commitment to the achievement of the United Nations Sustainable Development Goals, and with the UN Secretary-General's High-level Panel on Digital Cooperation's findings 1A and 1B which state, respectively, that by "2030 every adult should have affordable access to digital networks" and calls for "a broad, multi-stakeholder alliance, involving the UN, create a platform for sharing digital public goods." The signing of the collaboration agreement took place on the sides of Digital Almaty Forum, which brings together decision-makers, leading CEOs, international experts and mass media to discuss global digitalization trends, share experiences in digital transformation, and develop common approaches in regional cooperation.

(February 2, 2020) itu.int

Kosovo

Telecom Kosovo's (TK's) board of directors has been dismissed for mismanaging the telco by the nation's new government. Minister of Economy, Trade and Industry and Entrepreneurship and Strategic Investments, Rozeta Hajdari, proposed that the board be replaced, citing the operator's poor performance and its growing reputation for corruption. The Minister was quoted as telling cabinet: 'TK is in an extremely poor financial and operating condition, on the verge of bankruptcy, endangering Kosovo's telecommunications services and jeopardizing public property [and] the livelihoods of thousands of employees … The government should immediately dismiss the chairs of the board if it finds that they have breached their financial duties.' Newly-elected Prime Minister Albin Kurti's new cabinet voted unanimously to dismiss the officials. TK has faced numerous scandals in recent years, with allegations of abuse of office, nepotism and corruption, as it has steadily declined from one of the nation's most

profitable firms to the verge of bankruptcy. For the most part, these accusations have centered on the company over spending on services as a means to syphon cash from the company to an associate. Most recently, for example, an investigation earlier this year found that the company had spent over EUR30 million (USD32.5 million) on advertising and media sponsorships over the last decade, including more than EUR2 million since 2015 – when the provider had begun to register annual losses. TK had spent money with at least 116 online portals and media outlets, but the report noted that there were only 33 such entities registered with Kosovo's industry body at the time. Many of the beneficiaries of these deals were companies owned by politicians or their close associates. One such firm, Agjencia per Informim Rajonal, was partly-owned by the brother of the former PM and received thousands of euros from the telco.

(February 24, 2020) Prishtina Insight

Macedonia

The Agency for Electronic Communications (AEK) has opened a public consultation on the award of 5G authorizations in North Macedonia, giving interested parties until 6 March to submit their comments. The regulator is planning to initially award 5G-suitable spectrum in the 700MHz and 3.6GHz bands in the second half of 2020 (with other bands scheduled to be allocated in case of interest) and has invited all market participants to provide their input regarding terms and conditions of the spectrum auction, the demand for spectrum, the optimal way of allocating the airwaves, and a deadline consistent with the operators' return on investment. The AEK proposes to reserve 2×10MHz in the 700MHz band and 100MHz in the 3.6GHz bands for a new network operator, with a lower one-time fee and coverage obligations. Regarding the 700MHz airwaves, the regulator noted that there is an ongoing migration to the second-generation digital video broadcasting-terrestrial (DVB-T2) standard which should be completed by mid-2020, vacating the band for telecoms use. The AEK will award 2×10MHz of spectrum in the 700MHz band per operator, while it plans to distribute 300MHz in the 3.6GHz band (100MHz per operator) nationally and 68.5MHz regionally. When allocating spectrum in the two bands, the AEK is planning to prescribe a number of conditions, including territorial coverage (at least one city covered by 5G by the end of 2023 and all cities covered with uninterrupted 5G signal by 2027) and population coverage (all citizens to be provided 5G access with minimum downlink of 100Mbps by 2029).

(February 12, 2020) commsupdate.com

Myanmar

The Ministry of Transport and Communications (MOTC) has published a white paper on facilitating faster broadband and 5G adoption, recommending new broadband penetration targets as well as potential regulatory strategies to achieve these goals. The paper suggests setting penetration and speed targets by technology and along an urban/non-urban divide for 2020 and 2024 as follows:

For urban areas:
- 5% at 20Mbps via fixed technologies by 2020
- 15% at 20Mbps via fixed-wireless technologies by 2020
- 50% at 100Mbps via fixed technologies by 2024
- 50% at 100Mbps via fixed-wireless technologies by 2024.

For non-urban areas:
- 3% at 10Mbps via fixed technologies by 2020
- 20% at 5Mbps via fixed-wireless technologies by 2020
- 20% at 30Mbps via fixed technologies by 2024
- 60% at 30Mbps via fixed-wireless technologies by 2024.

To reach these targets, the white paper recommends making improvements to regulations to ease infrastructure deployment. Specifically, the paper suggests addressing right of way (RoW) challenges, which it identifies as a 'key barrier to expanding Myanmar's broadband penetration and coverage'. In a similar vein, the MOTC's Post and Telecommunications Department (PTD) should be tasked with establishing a national infrastructure database to enable a 'check before you dig' service that would help minimize accidental damage to existing networks. The PTD would also look to encourage greater infrastructure sharing, covering both existing systems and the deployment of new fixed broadband and 5G infrastructure. Meanwhile, the paper also recommends the release of additional spectrum, though TeleGeography notes that this process is already underway, with the PTD having published a roadmap for the release of airwaves in early 2019. That timeline – intended to steadily provide greater resources to industry players whilst striking a balance between affordability for telcos and revenue generation for the government – will see the state auction 2300MHz, 2600MHz and 3500MHz frequencies later this year, with a tender for 700MHz airwaves to follow in 2021 and 850MHz and 900MHz to be made available in 2022. The subsequent two years would then see the release of additional 3500MHz spectrum (2023), and other 5G-suitable frequencies, such as the 1500MHz, 4.8GHz and 26GHz bands (2024).

(February 19, 2020) commsupdate.com

Mexico

Mexico's Federal Telecomunications Institute (Instituto Federal de Telecomunicaciones, IFT) has fined America Movil (AM) subsidiary Telefonos del Noreste (Telnor) a total of MXN1.3 billion (USD69.7 million) for failing to disclose full details regarding the availability and technical characteristics of its networks. Telnor, which operates in north-western Mexico (including Baja California and Sonora), is – like its better-known sister company, Telmex – classified as a Preponderant Economic Agent (Agente Economico Preponderante, AEP). As such, Telnor is obliged to inform the regulator – and in turn the other concessionaires – of its network availability, so other operators can utilize excess network capacity. (January 29, 2020) commsupdate.com

Namibia

The Minister of Information and Communication Technology, Stanley Simaata, has officially launched the country's National Broadband Policy and Implementation Action Plan, first outlined in October 2019. Presenting the policy to a parliamentary standing committee on ICT and innovation, the minister described broadband as a 'technology that can fundamentally restructure an economy', boosting GDP growth, jobs, trade, service delivery and social development. The policy aims to provide broadband speeds of at least 2Mbps to 95% of the population by 2024, promote the development of content and applications, reduce the digital divide, and provide incentives for further investment in broadband deployment. Whereas the policy itself spans a ten-year period to 2029, the accompanying five-year implementation plan is designed to ensure effective delivery from the outset. (February 18, 2020) commsupdate.com

Nigeria

Nigeria's Minister of Communications and Digital Economy, Isa Ali Ibrahim Pantami, has directed telecoms regulator the Nigerian Communications Commission (NCC) to revise the policy on SIM registration and usage. The decision is based on feedback received from security agencies following the successful revalidation of improperly registered SIM cards in September 2019. The updated policy is expected to include the following provisions, among others:

- ensure that the National Identity Number (NIN) becomes a prerequisite for Nigerians registering new SIM cards, while already registered SIM cards are to be updated with NINs before 1 December 2020
- ensure that only fully accredited agents support the SIM card registration process without pre-registering SIM cards themselves, while the eventual registration should be done by the operators
- there should be a maximum number (potentially three) of SIM cards that can be tied to a single individual
- ensure that no unregistered SIMs are allowed on mobile networks
- ensure that subscribers can easily check the number of SIM cards registered to their name, along with the associated phone numbers and networks
- ensure that mobile network operators protect their networks against Cyberattacks, and
- ensure that SIM cards that have been used to commit crimes are permanently deactivated.

(February 7, 2020) commsupdate.com

Peru

Peru's Ministry of Transport and Communications (MTC) has updated the terms for the upcoming spectrum auction, confirming that 30MHz of frequencies in the 2300MHz band will be sold along with 60MHz in the 1700MHz (AWS-3) range. Successful bidders will be required to roll out fixed and mobile internet services to 5,641 locations nationwide by 2022. The winners will also be obliged to provide connectivity to 599 public institutions and to offer public telecommunications services to more than 500,000 citizens. The auction is being managed by the Private Investment Promotion Agency (Agencia de Promocion de la Inversion Privada, ProInversion), which will maintain the MTC's priorities for the narrowing of the digital divide and the provision of telecommunications services to departments in the Amazon rainforest. (February 12, 2020) commsupdate.com

The Ministry of Transport and Communications (MTC) has implemented an amendment to the 2012 law on the promotion of broadband services, which also set out the guidelines for the construction and management of the National Fabre Optic Backbone (Red Dorsal Nacional de Fibro Optica or RDNFO). The law intended to help close the digital divide with the deployment of a fiber backbone network spanning more than 13,000km and connecting 22 regional capitals and 180 provincial capitals. The network was completed in 2016 but was subsequently found to have been ineffective in achieving its goals, with changes in the market and the inflexibility of the governing regulatory structure blamed for the system's shortcomings. The rapid construction of rival networks and the commercial limitations of the RDNFO led to capacity on the network becoming overpriced in comparison to its competitors and the system was left under-utilized: capacity demand on the network for June 2018 had been projected to be around 137Gbps, but actual usage was just 21Gbps at that date. The regulator was unable to address the matter directly, however, as the rules for the RDNFO were enshrined within the 2012 legislation (Law 29904, Law for the Promotion of Broadband and Construction of the RDNFO) and would require a longer amendment process. The MTC announced a full review of the program in October 2018 and published proposals in July the following year. Supreme Decree 002-2020-MTC was passed on 24 January 2020 and amended four articles of Law 29904, lifting several restrictions on the RDNFO operator, providing it with greater commercial flexibility with regards to the services it can provide and how it sets prices. At present, the RDNFO operator is Azteca Communications, but the company has submitted a proposal to the MTC to withdraw from the scheme. (January 31, 2020) commsupdate.com

Poland

Poland's Office of Electronic Communications (Urzad Komunikacji Elektronicznej, UKE) has implemented new regulations aimed at making it easier for cablecos to share infrastructure in multi-dwelling residential buildings. The regulations, which were first published in draft form in May last year, are targeted at cable operators Netia, UPC Poland, Multimedia Polska, Vectra, INEA and Toya. UKE says the change will 'increase competition among operators and facilitate consumer access to telecommunications services'. It said under the previous regime infrastructure was often duplicated because operators were charging their rivals high fees for access. (January 30, 2020) commsupdate.com

Poland's Office of Electronic Communications (Urzad Komunikacji Elektronicznej, UKE) has launched its second round of consultation for the planned award of 5G spectrum in the 3400MHz-3800MHz band later this year. The regulator has ignored calls from operators which wanted the reserve price lowered from PLN450 million (USD116 million). As noted in CommsUpdate earlier this month, Orange Polska and P4 (Play) contacted UKE to request that the reserve price for each of the four available licenses be cut to around PLN248 million. The two operators calculated the lower reserve price based on similar 5G sales in countries such as Finland, Italy, Germany, Spain, Switzerland, Austria, Ireland and the UK. The regulator has also maintained the limit of one 80MHz block per bidder, despite fears that this could lead to a block going unsold if one of the country's four main cellcos opts to withdraw from the bidding. Meanwhile, UKE is also calling on licensees to speed up their network rollouts, giving them four months instead of the previous six to install at least ten base stations in one nominated city following the award of concessions. By the end of 2023 licensees must have deployed at least 300 base stations (originally 250) and by the end of 2025 the target is now 700 sites (originally 500). (January 28, 2020) commsupdate.com

Portugal

The President of Anacom, Joao Cadete de Matos, has sent to the Portuguese government a proposal to reduce spectrum fees, following demands from operators, he said in an interview. The fees amount to EUR 44.2 million in annual revenue for the state. Taking into account that the spectrum held by each operator will increase after the 5G auction, the telecom operators want a reduction in spectrum rates of at least 50 percent, as happened at the introduction of 4G. The Anacom Chief said the regulator submitted its advice and it will be up to the government to decide whether to proceed with an ordinance. The proposal is still for several tens of millions of euros in annual fees, Cadete de Matos said. (February 17, 2020) Jornal de Negocios

The National Communications Authority (ANACOM) has approved the draft rules for its upcoming 5G multi-band spectrum auction. The 5G auction, which is earmarked to take place in 2Q20, will comprise 700MHz, 900MHz, 1800MHz, 2100MHz, 2600MHz and 3.6GHz spectrum. The reserve prices have been set as follows:
- 700MHz; six lots of 2×5MHz (EUR19.20 million [USD20.9 million] per lot)
- 900MHz; one lot of 2×5MHz (EUR30.00 million per lot)
- 900MHz; four lots of 2×1MHz (EUR6.00 million per lot)
- 1800MHz; three lots of 2×5MHz (EUR4.00 million per lot)
- 2100MHz; one lot of 2×5MHz (EUR2.00 million per lot)
- 2600MHz; two lots of 2×5MHz (EUR3.00 million per lot)
- 2600MHz; one lot of 25MHz (EUR3.00 million per lot)
- 3.6GHz (with restrictions until 2025); six lots of 10MHz (EUR840,000 per lot)
- 3.6GHz (with restrictions until 2025); four lots of 10MHz (EUR940,000 per lot)
- 3.6GHz (no restrictions); 30 lots of 10MHz (EUR1.23 million per lot).

ANACOM notes that the prices for the 700MHz and 3.6GHz bands have been fixed with reference to the average reserve prices that have featured in European 5G auctions since 2018. These prices were adjusted considering the size of the Portuguese population, purchasing power parities and the duration of frequency usage rights. (February 13, 2020) commsupdate.com

Romania

Romania's Competition Council has fined NetCity Telecom, the company that builds and operates a shared open access underground fiber-optic network in Bucharest, a total of RON2.18 million (USD504,000) for abuse of its dominant position. The investigation opened in April 2019 determined that between 2010 and 2019 NetCity failed to make its infrastructure available on a transparent and non-discriminatory basis to all telecom operators wishing to provide services in Bucharest. In a statement, Bogdan Chiritoiu, President of the Competition Council, said he hoped the case would serve was a warning to operators of similar networks in several other Romanian cities. At the end of June 2019, NetCity had built 1,520km of underground infrastructure and connected 20,300 buildings. (February 3, 2020) commsupdate.com

Russia

Russia's proposed auction of 5G-suitable millimeter wave (mmWave) spectrum in the 25.25GHz-27.5GHz band – which was earmarked to take place in 1Q20 – is likely to be scrapped, RBC reports, citing documentation from the State Commission for Radio Frequencies (SCRF). As per the document, the mmWave frequencies will now be assigned to interested parties without a bidding process. In addition, the watchdog plans to allocate spectrum in the 24.65GHz-29.5GHz band to New Digital Solutions (a joint venture between Rostelecom and MegaFon) for 5G testing. This spectrum will be made available for testing purposes until March 2021. RBC claims that a final decision on the mmWave spectrum will be made at the SCRF's next meeting, which will take place on 10 March.

(February 21, 2020) RBC

Serbia

The Regulatory Agency for Electronic Communications and Postal Services (Regulatorna agencija za elektronske komunikacije i postanske usluge, RATEL) has begun a public consultation on frequency allocation plans for spectrum in the 2500MHz-2690MHz and 3400MHz-3800MHz ranges. For the 2600MHz band, RATEL is planning to auction 2×70MHz as FDD spectrum – split into 2×5MHz blocks – covering the 2500MHz-2570MHz/2620MHz-2690MHz range. In addition, the regulator is considering making a further 50MHz of TDD available in the 2570MHz-2620MHz range, parceled into 1×5MHz blocks. Similarly, the regulator is planning to allocate frequencies in the 3.5GHz range as 1×5MHz blocks. RATEL is inviting comments on the initial proposals by 10 March 2020.

(February 24, 2020) commsupdate.com

Singapore

Telecoms regulator the Info-communications Media Development Authority (IMDA) has confirmed that at the closing of its '5G Call for Proposal' deadline yesterday (17 February), it had received three bids from the city-state's mobile network operators (MNOs), with Singtel and TPG (Singapore) each submitting separate bids, and the second and third largest cellcos – StarHub and M1 – handing over a joint bid for a concession. TeleGeography notes that in a press release dated 23 January, StarHub and M1 confirmed the signing of an exclusive agreement to cooperate and submit a joint bid for one of the four 5G licenses due to be allocated by the IMDA. While the communique did not provide specific details on what type of license they intend to go for – national or regional/local – it did confirm that they were working towards the 17 February 2020 closing date for 5G proposals. The successful bidders are expected to be awarded the spectrum by mid-2020. 'IMDA is currently evaluating the submissions, and we expect to award the spectrum by mid-2020,' the regulator said in a statement. The regulator will assess, among other things, telcos' network security design and ability to achieve 50% islandwide coverage by end-2022. In a related development, TPG (Singapore) said that as part of its planned network deployment, it has contracted ST Engineering and SPTel, the engineering firm's joint venture with SP Group, to develop 5G use cases for several key verticals, namely, airports, maritime, smart estates, and the public sector. It is understood the tie-up will see ST Engineering's electronics unit providing the 'underlining platform as well as applications to facilitate these use cases, while SPTel will tap its software-defined network capabilities, including the provision of Multi-Access Edge Computing nodes, to support the delivery of such 5G applications.'

(February 18, 2020) commsupdate.com

Somalia

The telecoms regulator, the National Communications Authority (NCA), has introduced its new Unified Licensing Framework (ULF) following a consultation with industry stakeholders launched in October last year. The new framework allows for the provision of multiple services through the introduction of service and technology-neutral licenses to promote innovation and competition. Three types of permits exist under the new ULF, namely: Communications Infrastructure Provider (CIP) License, which is required for the operation and provision of network infrastructure; Application and Services Provider (ASP) License, issued to service providers which utilize the infrastructure of a CIP; and Communications Infrastructure and Services Provider (CISP) License, a combined permit which allows holders to operate and provide infrastructure, services and applications. Current service providers have until 1 April 2020 to apply for the relevant licenses, otherwise they will be treated as new entrants.

(February 19, 2020) commsupdate.com

Sweden

Swedish communications regulator PTS said that its 2020 market regulation efforts will include receiving information from credit institutions on their cash provision for the first time. Its other annual activities will concentrate on open internet access, international roaming and public operators' compliance with the broadband expansion law. The watchdog said it will monitor compliance but also react to events. From January 1, 2021, credit institutions will have an obligation to provide cash services to a satisfactory extent nationwide. However, their information disclosure duty to PTS begins in 2020, and this will be a priority for the communications regulator this year. Looking at open internet access, PTS said it has identified the need to increase scrutiny of compliance with rules. It will ensure there are few hurdles to access and that operators do not apply arbitrary limits or blocks. Therefore, PTS will study traffic direction measures and limits on connecting servers. Turning to international roaming, the regulator said it will ensure that operators follow EU pricing regulations. PTS said it will also monitor operator's compliance with competition rules, such as pricing obligations for interconnection markets and broadcasting.

(February 25, 2020) telecompaper.co

Tanzania

Airtel Tanzania, the country's second largest mobile operator by subscribers, has been allocated an additional 2×10MHz of spectrum in the 1800MHz band, at an annual cost of USD600,000. The latest award brings Airtel's total allocation to 2×22.5MHz in the 1800MHz band. In addition, Airtel Tanzania has been authorized by the Tanzania Communications Regulatory Authority (TCRA) to use 10MHz in the 700MHz band for eight months. The license will be issued following a USD12 million payment to the regulatory authorities in June 2020. (February 4, 2020) commsupdate.com

The Tanzania Communications Regulatory Authority (TCRA) has already switched off around 3.7 million SIM cards and plans to disconnect a further 15.3 million, following the conclusion of its biometric SIM registration program on 20 January. The scheme was launched on 1 May 2019 and was originally scheduled to be completed on 31 December, but the deadline was extended by 20 days to give mobile phone users more time to register their National Identification Numbers with their service provider.

(January 31, 2020) The EastAfrican

Thailand

Thailand's regulator approved all five operators submitting applications for a spectrum sale, raising expectations the government could generate a huge windfall after three prior auctions attracted limited interest. The National Broadcasting and Telecommunications Commission (NBTC) announced AIS, True Move and state-owned CAT Telecom qualified to bid for spectrum in the 700MHz, 2.6GHz and 26GHz bands. Dtac and state-owned TOT were cleared for the 26GHz band sale. The auction is scheduled to begin on 16 February. None of operators expressed interest in 1800MHz spectrum, which was left unsold in a long delayed 4G auction in August 2018, when only two of nine blocks of 10MHz available were sold. The major deterrent was the reserve price per 10MHz slot was set at THB12.48 billion ($400 million) the same level as the winning price during an 1800MHz auction in late 2015. Last week the country's three major private mobile operators along with state-owned TOT and CAT Telecom showed overwhelming support for the latest auction. In late January, NBTC raised its forecast for proceeds from $1.8 billion to $2.1 billion, after the government approved participation by the country's state-owned operators. The regulator previously expected the sale to raise about $1.8 billion. In addition to the tepid interest in the 1800MHz band, the regulator cancelled a 900MHz sale in August 2018 and dtac acquired 10MHz of 900MHz spectrum in an uncontested auction in October the same year. The country's first 4G auction in November 2015 generated $2.25 billion for the government, with AIS and True Move each paying more than $1 billion for 15MHz of 1800MHz spectrum. (February 13, 2020) mobileworldlive.com

The three major private mobile operators in Thailand along with state-owned TOT and CAT Telecom confirmed plans to participate in a spectrum auction scheduled to start on 16 February, ending uncertainty around the process. In separate stock market filings, AIS, True Move and dtac said they submitted the necessary documents to the National Broadcasting and Telecommunications Commission (NBTC) by 4 February deadline. CAT Telecom president Sanpachai Huvanandana handed its application to NBTC officials. TOT announced it would apply by the deadline, but had yet to issue a formal statement by the close of business hours. The government recently approved participation by the country's two state-owned operators in the sale of spectrum in the 700MHz, 1800MHz, 2600MHz and 26GHz bands, spurring the regulator to raise its forecast for the auction to THB64 billion ($2.1 billion). An announcement on qualified bidders is due from the NBTC on 12 February. Network rollouts are expected to begin in March. (February 4, 2020) mobileworldlive.com

Ukraine

Ukraine's National Commission for State Regulation of Communications & Informatization (NCCIR/NKRZI) confirms on its website that it has adopted a decision on the 'early implementation' of 4G LTE 900MHz network services by the country's three GSM mobile operators Kyivstar, Vodafone Ukraine and Lifecell, made possible by the defragmentation and redistribution of the 900MHz spectrum band – up until now used solely for 2G. The three 900MHz holders are expected to be issued new technology-neutral licenses by next month with the aim of augmenting and expanding their existing LTE-1800 and LTE-2600 networks, while according to previous regulatory and government statements the 900MHz frequencies were set to be valid for LTE usage from 1 July 2020. The latest NCCIR decision, however, appears to lay the path for LTE-900 deployment to start before this date. Note that as part of Ukraine's program of 800MHz-900MHz redistribution, CDMA operator Intertelecom will be granted permission to launch LTE in the 800MHz-850MHz range from 1 April 2020.

(February 26, 2020) commsupdate.com

Ukraine's National Commission for State Regulation of Communications & Informatization (NCCIR/NKRZI) confirms on its website that it has adopted a decision on the 'early implementation' of 4G LTE 900MHz network services by the country's three GSM mobile operators Kyivstar, Vodafone Ukraine and Lifecell, made possible by the defragmentation and redistribution of the 900MHz spectrum band – up until now used solely for 2G. The three 900MHz holders are expected to be issued new technology-neutral licenses by next month with the aim of augmenting and expanding their existing LTE-1800 and LTE-2600 networks, while according to previous regulatory and government statements the 900MHz frequencies were set to be valid for LTE usage from 1 July 2020. The latest NCCIR decision, however, appears to lay the path for LTE-900 deployment to start before this date. Note that as part of Ukraine's program of 800MHz-900MHz redistribution, CDMA operator Intertelecom will be granted permission to launch LTE in the 800MHz-850MHz range from 1 April 2020.

(February 24, 2020) commsupdate.com

Ukraine's Cabinet of Ministers approved amendments to the national frequency plan to allow redistribution of 800MHz and 900MHz spectrum to support expansion of 4G LTE mobile networks, Interfax-Ukraine reports. Operators – including GSM/3G/LTE providers Kyivstar, Vodafone and Lifecell, alongside CDMA operator Intertelecom – are expected to renew their licenses under revised conditions on a technology-neutral basis in March, with Intertelecom to begin developing an LTE network in April, according to Prime Minister Aleksey Goncharuk. Kyivstar, Vodafone and Lifecell are expected to utilize the 800MHz-900MHz bands for LTE expansion from July. The latest frequency plan amendments also cover elimination of mutual interference in the operation of CDMA and E-GSM networks, while in addition, the usage of 3700MHz-3800MHz spectrum for mobile services is now permitted (effective from 1 February 2020).

(February 7, 2020) mobileworldlive.com

United Kingdom

The UK government unveiled a new £30 million scheme to fund 5G trials in various industries, adding to an existing £35 million program to stimulate innovation in delivering next generation services to rural areas and industry. Unveiled today, 5G Create is an open competition focused on delivering innovations in industries including film, TV, video games, logistics and tourism. In a statement, the Department for Digital, Culture, Media and Sport (DCMS) explained the contest will run from early March to end-June and add to a related contest covering rural innovations. UK Digital Secretary Oliver Dowden explained the funding aimed to help the country "seize the new opportunities" 5G will offer, including "seeing how it could create new jobs in the countryside, make businesses more productive and unleash even more ideas in our cutting-edge creative industries". The DCMS noted the programmes add to a broader £200 million investment in 5G testbeds and trials to explore ways in which the technology could "boost business growth and productivity, improve the lives of people in rural areas and maximize the productivity benefits of new technologies". In 2019, the government announced a £30 million pot for seven 5G projects to connect rural areas with a further £5 million for testing the benefits of the technology in the manufacturing sector. The DCMS added the trial programmes would also "support the government's ambition to diversify the supply chain for digital infrastructure" in the country, adding none of the winners from 5G Create "will use equipment from high-risk vendors". Several news outlets reported this means Huawei had been locked out of participating in the 5G projects as the government continues to monitor the Chinese vendor's security credentials. In January, the government ruled Huawei equipment would not be used in core 5G networks, but cleared it for use in non-sensitive parts, albeit with restrictions.

(February 20, 2020) mobileworldlive.com

The telecoms regulator Ofcom has announced that it is making some regulatory changes with a view to helping broadband companies upgrade customers to faster broadband more efficiently, while also supporting trials aimed at providing customers with

newer broadband and telephone services. In a press release regarding the matter, the watchdog revealed that network infrastructure provider Openreach will undertake trials in Salisbury and Mildenhall to test the processes for moving customers off 'older' home and broadband services. To facilitate the Salisbury trial, Ofcom has decided to limit the application of current rules which require Openreach to provide wholesale access to standard and superfast broadband on its copper network. To that end, in Salisbury – where fibre is available – Openreach will no longer be required to provide new copper services when customers move home, change service or switch provider. Instead, it will be able to offer broadband over its fiber network only. In addition, Ofcom will permit the infrastructure provider to vary some of its charges to encourage participation in the Salisbury and Mildenhall trials. Meanwhile, Ofcom noted that Openreach has created a new process for upgrades to be made in bulk batches at a street cabinet, reducing the cost per customer. Under this revised process, it would wait for a sufficient number of upgrades from a broadband company at a

given cabinet before making those upgrades. However, under current regulations Openreach is required to install new broadband connections within a set timeframe. According to Ofcom, given the potential benefits to broadband customers of using this new process, it has, however, decided to make these orders exempt from certain rules that require them to be completed within a set timeframe.
(January 30, 2020) commsupdate.com

UK telecoms regulator Ofcom has published a framework for assessing if telecoms and pay-TV companies are treating customers fairly. This is the latest step in Ofcom's 'Fairness for Customers' program. When assessing concerns about fairness, Ofcom will consider the following questions - how are customers treated by providers throughout the customer journey? Who, if anyone, is being harmed? (Such as vulnerable customers); what is the extent of any harm? How important is the service? And Does the service depend on risky new investment?
(January 25, 2020) telecompaper.com

United States

The Federal Communications Commission (FCC) announced its new Rural Digital Opportunity Fund (RDOF) for faster broadband speeds in order to help close the digital divide in rural areas. RDOF will push out up to $20.4 billion in funding over the next 10 years to build and connect gigabit broadband speeds in unserved rural areas. The RDOF initiative follows on the heels of the FCC's Connect America Fund (CAF) II program. For telco incumbents such as AT&T, CenturyLink, Windstream and Frontier, RDOF extends their CAF II funding for one additional year through 2021. Unlike CAF II, RDOF will be implemented through a two-phase reverse auction process, which includes the incumbent telcos competing directly with independent broadband providers. "We are excited that the FCC has adopted the Rural Digital Opportunity Fund," said David Bartlett, CenturyLink vice president of government affairs, in a statement. "We appreciate Chairman Pai's and the other commissioners' leadership and collaborative efforts in designing a program that will bring the tremendous benefits of broadband and faster speeds to more Americans in high-cost, hard-to-serve areas of the country where it's currently lacking." The first phase of RDOF starts later this year, and targets census blocks that are wholly unserved with fixed broadband at speeds of at least 25 Mbps down and 3 Mbps up. The first phase would make available up to $16 billion to census blocks where existing data shows there is no such service available whatsoever. The funds will be doled out via a multi-round reverse auction similar to the one used in 2018's CAF Phase II

auction. FCC staff has identified about six million rural homes and businesses that are currently located in areas initially eligible for bidding in the Phase I auction. The FCC said the RDOF auction will prioritize networks with higher speeds, greater usage allowances, and lower latency. Prospective bidders must also commit to providing a minimum speed more than double than was required in the CAF Phase II auction. Phase II of the program will make available at least $4.4 billion to target partially served areas, or census blocks where some locations lack access to 25/3 Mbps broadband speeds. According to a recent report from MoffettNathanson Research, CenturyLink has received $506 million per year since 2015 in CAF II awards, which will total more than $3 billion over the six-year period from 2015 to 2020. Other top beneficiaries of CAF II awards include AT&T, which has received $428 million per year since 2015; Frontier, which has received $332 million per year during the same time frame; and Windstream, which has received $175 million per year. In exchange for the free government money, the recipients agreed to deploy broadband service with at least 10 Mbps downstream and 1 Mbps upstream to specific rural locations. MoffettNathanson reports that the CAF II money that the incumbents received was typically more than the cost of the network builds.
(January 30, 2020) fiercetelecom.com

The US Federal Communications Commission has just announced its approval of the commercial deployment of CBRS (Citizens Broadcast Radio Service) spectrum.

This 3.5GHz spectrum is already being used for 5G in other parts of the world, particularly in China and South Korea – two key markets for smartphones. This means that wireless companies can begin requesting permission to use some of this spectrum for both 4G and 5G deployment (among other applications) via four selected companies: Google, Sony, CommScope, and Federated Wireless. In order to use the newly available spectrum, devices need to be certified as OnGo (branding for the spectrum). The US Department of Defense, for instance, may be able to suddenly take over the spectrum when necessary and OnGo devices will be able to dynamically adjust their transmissions so that the spectrum can be "shared" among applications like rural broadband, IoT, or even setting up an a corporate internal LTE network. The FCC has made it a priority to free up mid-band spectrum for advanced wireless services like 5G. And today, I'm pleased to announce the latest step to achieve that priority: the approval of four systems that will enable the 3.5 GHz band to be put to use for the benefit of American consumers and businesses. – Ajit Pai, FCC Chairman US Mobile carriers have already been preparing to support the new spectrum (Band 48). In particular, both AT&T and Verizon have equipped some of their cell sites with CBRS support so that in conjunction with carrier aggregation, smartphones already on the market can take advantage of improved coverage and faster data speeds. All current-gen iPhones, the Google Pixel 3 and 4, LG G8, OnePlus 7 Pro, Verizon's 5G Moto Mod, Samsung Galaxy S10 and Note10 are all hardware-equipped to support the new band.

(January 28, 2020) androidpolice.com

Zambia

Patrick Mutimunshi, director general at the Zambia Information and Communications Technology Authority (ZICTA), has reportedly suggested that a fifth mobile network operator (MNO) concession could be offered in the country. According to ITWeb Africa, with the executive noting that the regulatory body's mandate is to ensure sustained competition in the cellular sector, he was cited as saying: 'The new licensing regime that we have has opened up the market for anyone to come in the country and invest. There is still the possibility of us accommodating a fifth operator that can still be able to make profit because at the end of the day, the operations must be sustainable.' Meanwhile, the report also claims that the government has already carried out a market analysis, the results of which supported the entry of a fifth MNO and suggested that another new player would still allow for the wireless sector to remain profitable. According to the unnamed insider at ZICTA which revealed the existence of the market analysis, the government is keen to see the market develop to a point where competition drives down the high cost of voice communication and data services.

(February 18, 2020) commsupdate.com

Zimbabwe

The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) has launched a USD6 million scheme to improve rural communications. The Passive Telecommunications Infrastructure Project, supported by the Universal Services Fund (USF), will deploy 20 shared base stations in Masvingo, Manicaland, Matabeleland North, Midlands, Mashonaland West, Mashonaland East, Mashonaland Central and Matabeleland South provinces. POTRAZ spokesperson George Manyaya said: 'The project aims to bridge the digital divide as witnessed by the upsurge in the country's mobile and internet penetration rates. We expect, upon completion of the project, mobile telecoms firms will share the infrastructure and the facilities.'

(February 19, 2020) commsupdate.com

The Postal and Telecommunications Regulatory Authority of Zimbabwe (Potraz) has embarked on an infrastructure development project which will ensure that the marginalized and under-serviced communities in the country are able to access information communication technologies (ICT) and telecommunication services. The Passive Telecommunications Infrastructure Project, which is supported by the Universal Services Fund (USF), has enabled the construction of 20 telecommunication sites which will cater for under-serviced areas in the remotest parts of the country. Currently, members of the Parliamentary Portfolio Committee on Information Communication Technology are on a fact-finding mission in different parts of the country to find out if telecommunication companies are sharing infrastructure. Passive infrastructure refers to non-active facilities provided at a telecommunications site to support the provision of ICT services to the surrounding areas, for example, solar power, towers, diesel engine generators, power back-up batteries, access roads and perimeter fences. Speaking on behalf of the director-general Gift Machengete, Potraz spokesperson George Manyaya said the passive infrastructure connectivity project would contribute to the turnaround of the

economy. "The projects were funded through the Universal Services Fund, which is aimed at promoting universal access and improving standards of life," he said. "Accordingly, we are working towards bridging the digital divide as testified by the increase in the country's mobile and internet penetration rates. This also enables infrastructure sharing by operators as we provide the infrastructure and operators share the facility." Manyaya said after completion of the project, the infrastructure is assigned to a licensed telecommunications operator for operation and maintenance purposes. "However, all operators are obliged to share the passive telecommunications infrastructure site facilities," Manyaya said. To date, USF has funded and constructed 15 shared passive mobile telecommunications base station sites in Midlands, Masvingo, Matabeleland North, Matabeleland South, Manicaland, Mashonaland West, Mashonaland East and Mashonaland Central provinces. Meanwhile, Sikelela Nleya, the headmaster of Mangubo Primary School in Maitengwe, Plumtree, commented the USF for setting up a base station a few meters away from the school. He said the school bought 11 computers to set up a computer laboratory to take advantage of Maitengwe Base Station and appealed to authorities to connect power to the institution. Potraz programmes manager Mavis Maunganidze said the USF was prioritizing connectivity to marginalized communities in the country.

(February 15, 2020) newsday.co.zw

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