July-August, Volume 13, 2022

A SAMENA Telecommunications Council Publication

SAMENA TRENDS

www.samenacouncil.org

FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

Interview

Natalia Komleva
Chief Executive Officer
Nexign

THIS MONTH

TOWARD A SUSTAINABLE 5G GROWTH PATH

JULY-AUGUST, VOLUME 13, 2022

SAMENA
TRENDS

Editor-in-Chief
Bocar A. BA

Contributing Editors
Izhar Ahmad
Javaid Akhtar Malik

Knowledge Contributions
China Mobile International
Cullen International
etisalat by e&
Huawei
Nexign
Nokia
SES
Syniverse

Publisher
SAMENA Telecommunications Council

Subscriptions
subscriptions@samenacouncil.org

Advertising
ads@samenacouncil.org

SAMENA TRENDS
trends@samenacouncil.org
Tel: +971.4.364.2700

CONTENTS

CONTENTS

Let's advance together digital transformation for all!
Let's Partner2Connect!

www.itu.int/Partner2Connect #Partner2Connect

ITU | Partner2Connect

Toward a Sustainable 5G Growth Path

5G subscriptions are on the rise and countries, including Saudi Arabia, the UAE, Qatar, Oman, Kuwait and Bahrain, are leading in the adoption and others are awaiting release of new spectrum. Cross-industry applications and use-cases of 5G and IoT are maturing while foundation for 5.5G is being laid down in the region to ensure future sustainability of a to-be-thriving digital ecosystem.

With the growth of 5G applications and new opportunities that they bring forth, new radio-access network technologies, access to more contiguous spectrum resources, green energy, and low-carbon infrastructure development and climate-focused business operations have now taken on much importance. Moreover, as sustainable access to meaningful connectivity is made increasingly more possible and broadband becomes ever more relevant, times require that new thresholds in cooperation building, commitment from all stakeholders and decision-makers, and reach of connectivity at the end-user and end-machine level as well as sustainable returns and investments by TechCos be set.

How we deploy digital technology for tomorrow has a lot to do with approaches we adopt today. Some such approaches must necessarily focus on formulating carbon-neutral network strategies, planning well in advance to make the best of the World Radiocommunication Conference 2023 in Dubai next year, and being fully aligned on the need for spectrum resource allocation (for example, of 6GHz) for harmonized adoption, especially since this particular band can help truly accelerate successful 5G rollouts and keep 5G growth and investment on a sustainable path, if adopted by all regional Administrations for licensed mobile use. We are reminded time and again that many of the 17 SDGs are clearly linked to such approaches and how our Industry grows, adapts, and sustains itself amidst the changes and transformations that are inherent to it.

Business practices as well as policy and regulatory approaches also necessarily need to more effectively address the requirements of the private sector while financial pressures on the public sector and governments must also be mitigated. This is very important in the context of new trends and new implementation of new connectivity streams to ensure that full potential of new technologies and efforts to fund, finance and build new digital infrastructure materializes by the globally agreed timeline (2030).

The path to 5G and 5.5G growth appears relatively clear and to tread it requires critical and timely decisions on all parallel fronts, ranging from technology, resources, use-cases, investments, carbon control, and both social and business value-creation. It is indeed truly through new cooperation-building that many prevailing and emerging gaps would be filled.

A new stage has been set.

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

Unleash your connectivity with Equinix Internet Exchange®

Available In Mobily Jeddah data center

EQUINIX

SAMENA COUNCIL ACTIVITY

SES Brings Global Content Connectivity Aspirations and Expertise to the SAMENA Council Membership

SAMENA Telecommunications council has announced that SES, with its extensive geostationary and non-geostationary satellite footprint around the world, has joined leading satellite service providers that a part of the SAMENA Council's membership. As a trusted partner to governments, connectivity and cloud service providers, broadcasters, video platform operators, content owners, and the world's leading telecommunications companies, including those that are members of the Council, SES's presence in the SAMENA Council's community of operators and tech providers materializes at an important juncture in terrestrial and satellite industry collaboration. Bocar BA, CEO & Board Member of SAMENA Council believes "SES's participation in SAMENA Council, its globally-renowned role, its bold vision of delivering new digital experiences all around the world through its extensive multi-orbit constellation of broadband satellites, extensive ground infrastructure, and distribution of highest-quality video content and seamless connectivity, could prove to be important factors in realizing better coordination and cooperation among the Digital Economy and Space Economy players. We warmly welcome SES and its regional team to the Council." As a leader in global content connectivity solutions, SES operates the world's only multi-orbit constellation of satellites with a unique combination of global coverage and high performance, including the commercially-proven, low-latency Medium Earth Orbit O3b system. By leveraging a vast and intelligent, cloud-enabled network, SES is able to deliver high-quality connectivity solutions anywhere on land, at sea or in the air. SES also provides managed data services to telcos and ISPs, mobile network operators, cloud solution providers, in-flight connectivity providers and maritime fleets, energy companies, and government agencies. With its established and industry-wide recognized aim of bridging telecoms ecosystem priorities, including on sustainable investment and highlighting digital transformation needs of the region, SAMENA Council actively advocates on behalf of its operator members and works closely with private-sector stakeholders, including SES and other satellite service providers. SAMENA Council pursues improved policymaking, agile regulation, and close collaboration among the digital ecosystem players, and highlights among government and private-sector stakeholders' issues, such as those relating to spectrum, need for accelerated digitization and sustainability in digital development, investments, operations, and the environment. Seeing a strong potential for SES and SAMENA Council to mutually enable industry dialogue and rectification of common industry issues, Andy Anderson, Marketing Director of SES's Africa, Middle East & Central Asia operations also stated that "SAMENA's mission is fully aligned with SES's vision, which is to deliver amazing experiences everywhere on earth by distributing seamless connectivity around the world. As the world's only multi-orbit satellite operator, SES is a trusted partner to the world's leading telecommunications companies, mobile network operators, governments and cloud service providers and we look forward to working with SAMENA Council to enable investments in the next-generation connectivity infrastructure in the region and to promote co-operation between various ICT industry players."

> *"SES's participation in SAMENA Council, its globally-renowned role, its bold vision of delivering new digital experiences all around the world through its extensive multi-orbit constellation of broadband satellites, extensive ground infrastructure, and distribution of highest-quality video content and seamless connectivity, could prove to be important factors in realizing better coordination and cooperation among the Digital Economy and Space Economy players. We warmly welcome SES and its regional team to the Council."*
>
> ***Bocar BA, CEO & Board Member of SAMENA Council***

Reshaping Monetization Core to Fuel Digital Innovations

Harmonize all revenue streams on a single platform with Nexign, a major supplier of BSS & Monetization solutions. Over 30 years in the market, we strive to strengthen partnerships with our clients by offering them innovative products and extensive expertise in the field of IT and telecommunications.

Empower change. Reimagine the future.

nexign

Nexign Talks to SAMENA Council

Nexign aligns with leading global telco vendors and service providers to deliver open digital architecture and replace legacy BSS systems in order to transform business agility and unlock growth. Ms. Natalia Komleva, appointed in June 2022 as its CEO to steer operations and strateg, shares her business insights on various business matters.

Q. Your core business is providing BSS solutions, including billing, charging and policy management to telecom operators. Can you share with us the latest developments in this sector? What are the main challenges you or your clients are currently facing?
A. It is fair to say that most of our clients have already gone through considerable digital transformation, but new challenges are coming ahead. In the race towards 5G, the pace of change required from businesses is accelerating rapidly. As a result, telecom operators continue to rethink and expand their role in value chains, try innovative business models, and explore novel business areas to open new revenue opportunities and offer advanced services to their digital-first clients. Of course, all of these changes impact BSS systems and require focusing on improving operational efficiency and maintaining a high rate of innovation.

> *We firmly believe our role is to offer solutions that facilitate monetization of the CSPs' development correctly and promote quick and efficient revenue growth.*

Q. In your view, what currently poses the greatest challenge to Operators' revenues?
A. As you know, the traditional telecom business has limited opportunities for growth, and CSPs are shifting beyond traditional communication services and exploring new revenue sources, including cloud, security, finance, and digital entertainment. We firmly believe our role is to offer solutions that facilitate monetization of the CSPs' development correctly and promote quick and efficient revenue growth.

Natalia Komleva
Chief Executive Officer
Nexign

For instance, we often see that CSPs are still using inefficient siloed billing systems. These separate legacy billing systems negatively affect customer satisfaction and loyalty. Our products and expertise allow us to help CSPs adopt a unified billing platform for structured and flexible revenue management and ensure a convergent user experience across applications. As a result, the company gets the opportunity to capitalize on emerging services effectively, and customer loyalty increases.

Q. How do you adapt your portfolio to these trends? What are your new offerings for the industry?

A. Our portfolio has always been designed to enable the CSPs' digital journey through systems consolidation and aimed to monetize multidimensional convergence, harmonize revenue streams, and establish strong partnerships with content and application service providers. Currently, our most popular products encompass BSS and Network Monetization solutions.

> *Our portfolio has always been designed to enable the CSPs' digital journey through systems consolidation and aimed to monetize multi-dimensional convergence, harmonize revenue streams, and establish strong partnerships with content and application service providers.*

They primarily help operators manage revenue streams coming from the growing complexity of telecom systems and provide them with solutions tailored for various transformation paths. Furthermore, all of them contribute to increasing revenues and creating a sound digital ecosystem.

Some time ago, we also decided to move towards a more diversified suite of services and look into developing solutions beyond BSS systems. We started by responding to the ever-growing demand in flexibility and transformation among wider IT companies and introduced the Microservices Framework solution that empowered telcos to develop, launch, and control fast innovations based on flexible microservices architecture.

Later, to support in-depth cultural transformation, where digital and IT are taking a stronger role in any organization, we decided to share our own experience in this space to a broader audience. Our team introduced Neon Intranet Platform, a unified digital platform to enhance digital employee experience. The timing of the launch is especially opportune if you consider all the challenges the companies face amidst hybrid or remote work management today.

Q. How is Nexign's Neon Intranet Platform different from your competitors'?

A. Initially, we developed Neon Intranet Platform for ourselves. It was an internal corporate portal for Nexign employees created to replace a large number of fragmented systems. At some point, we realized that the platform might be appealing to other companies valuing employee comfort and job satisfaction, so we decided to bring it to the market. It is designed with an employee-centric approach and has the potential to become a pillar of the adaptive corporate culture, driving engagement and contribution to business growth.

> *We support end-to-end digital transformation by closely partnering with customers to solve their specific needs. Our solutions and approaches are tailor-made to address the requirements and goals of our clients, ranging from a quick launch of a mobile business to large-scale business transformation.*

> *As a member of the SAMENA Council, Nexign receives a lot of support in the issues of promotion, consultation, and interaction with partners, and we would like to thank the Council for its assistance.*

Besides, the platform is built on the cutting-edge open-source tech stack and microservices architecture that allows for developing each of Neon's components as an individual IT product. Therefore, it could be easily deployed and rapidly scaled in accordance with new requirements and experiences. For example, if the HR team wants to include employee bonuses and incentive programs or add an internal corporate market with virtual currency to its Intranet Platform, the company no longer faces the need to add changes to its core system. Instead, new microservices are easily created to adapt to new tasks. In addition, if an error occurs in one module, the rest of the platform continues to work correctly. This factor is vitally important for large systems with high-reliability requirements.

Q. How has Nexign positioned itself for the Telecom Operators of the Middle East, and what is an ideal partner-of-choice profile that you always seek?

A. We support end-to-end digital transformation by closely partnering with customers to solve their specific needs. Our solutions and approaches are tailor-made to address the requirements and goals of our clients, ranging from a quick launch of a mobile business to large-scale business transformation. For instance, our target customer could be a CSP embarked on the journey to becoming a digital service provider and aiming to launch up-and-coming services quickly. Alternatively, our client could be a CSP wanting to replace its legacy BSS system to remove the restrictions on service capacity, expand its customer base, and support business growth.

Q. Who are the key clients that Nexign collaborates with in the region? How are your solutions benefiting them?

A. We have recently implemented the Marketing Campaign Management System for Zain Kuwait. This system represents a BI-integrated solution for diversified campaign management during the customer lifecycle and allows its users to define target segments and schedule, execute, and track the performance of marketing campaigns. It also enables the company to increase response rates and the effectiveness of sales and marketing initiatives. Now Zain Kuwait has an excellent tool to make targeted offerings to diverse groups of its clients and boost customer satisfaction, loyalty, and retention.

Q. What are you eyeing for the year 2022-2023 and anticipating as a member of SAMENA Council?

A. In our opinion, trends for digital innovations, advanced employee experience, and 5G monetization will continue in the upcoming years. The importance of agility will also grow, and more CSPs will continue to transform towards the IT direction to effectively respond to new market and user requirements. Additionally, telecom providers will continue to focus on creating ecosystems and developing partner networks, as it will help them optimize the value chain and find new revenue sources. As a member of the SAMENA Council, Nexign receives a lot of support in the issues of promotion, consultation, and interaction with partners, and we would like to thank the Council for its assistance. We are certainly looking forward to expanding our collaboration and working on new projects together.

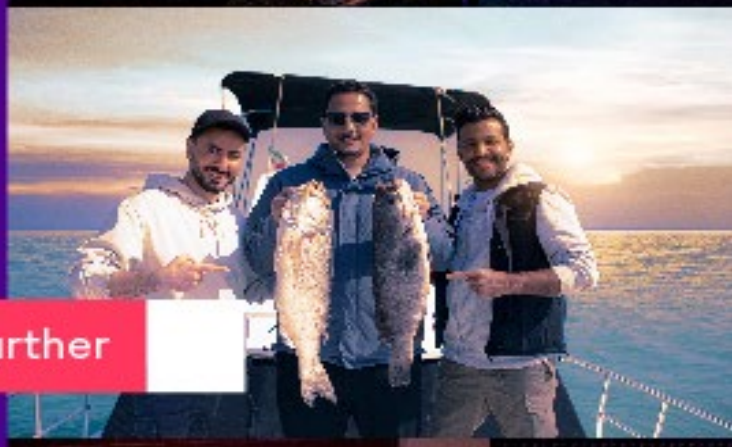
FULL فل
5G

GO FULL 5G

The first and only network to take 5G further

#go_full_5G

stc



SA-ME-NA Spotlight: Saudi Arabia

IoT Drives Transformation of Regional Economies

Across the world, people's lives and businesses are becoming ever more integrated and connected. This has been accelerating through digitization touching and shaping more and more aspects of people's lives. Governments, industries and businesses are rapidly transitioning to online and connected offerings, increasingly incorporating the Internet of Things (IoT) in their drive to meet customer's demand.

> *According to the latest available data, there are approximately 7.74 billion connected IoT devices. The number of current IoT devices (7 billion) may seem staggering. But due to 5G and other technologies, this figure is expected to increase to 25.44 billion total IoT devides by 2030.*

Worldwide IoT Trends & Industry Size

According to research conducted by Statista, it has been estimated that global spending on the Internet of Things amounted to 685.64 billion US dollars in 2019 and is expected to reach 1.17 trillion dollars in 2024.

- There are over 7 billion connected IoT devices
- It's expected there will be 25.4 billion IoT devices by 2030
- IoT devices surpassed non-IoT devices in 2020
- There are more than 400 active IoT platforms in existence
- Video entertainment is the biggest spending category in IoT
- Over 10% of VC funding is IoT-related

The volume of connected IoT devices has grown recently. And is expected to grow year-over-year for the foreseeable future. According to the latest available data, there are approximately 7.74 billion connected IoT devices. The number of current IoT devices (7 billion) may seem staggering. But due to 5G and other technologies, this figure is expected to increase by over 3x to 25.44 billion total IoT devides by 2030.

IoT Trends in Middle East

The next two years are critical for the Middle East region with big ticket events like Expo 2020-21 and FIFA World Cup 2022. The expected influx of tourists and visitors means, it will be an explosive year for the digital signage industry. Industry insiders are now predicting that the Middle East and Africa digital signage market is largely expected to register a compound annual growth rate of over 6 percent by 2025. "The digital signage space is growing rapidly driven by both the private and the public sectors. This is a result of the prevailing circumstances as well as the shifting consumer preferences. For 2021 and beyond, more businesses will adopt and deploy disruptive trends such as the heightened use of artificial intelligence, automation and IOT which is already impacting the industry and region," stated by CEO of Pixcom.

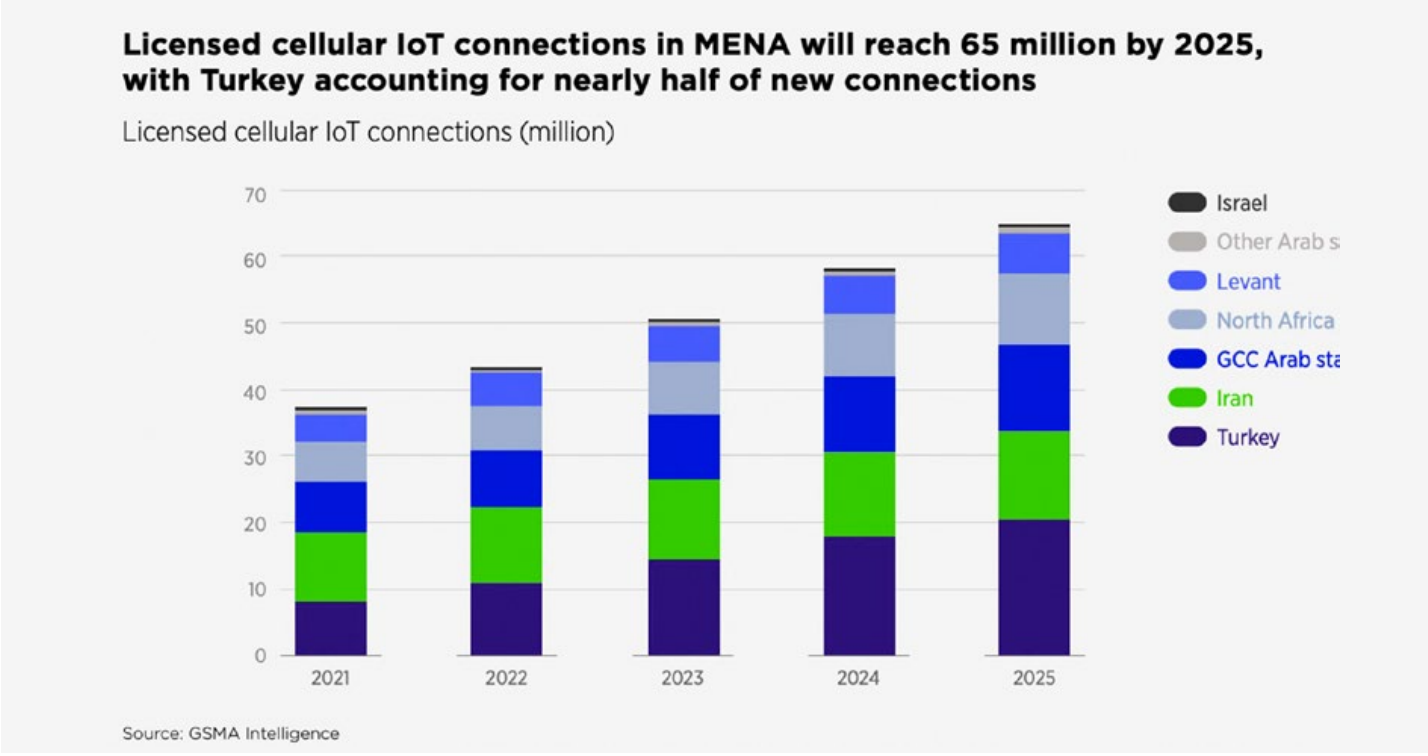
Pixcom also predicts that Internet of Things (IoT), AR and AI are among the trends that are likely to influence the industry. As AI, AR and IOT further develop and merge with technology like digital signage, the level of personalization will grow to a great extent. Productivity will increase as a result of Artificial Intelligence. Artificial intelligence and augmented reality are rapidly becoming household names as companies, ranging from big retailers to small restaurants, embrace these technologies. With digital signage already making customer experience in retail more comfortable for the customer, AI, AR and IOT enabled will push this even further. The ease with which consumers find the products and the speed with which they become aware of products suited for them will grow, as well. (Reference: Pixcom, Arabadonline)

Countries such as Saudi Arabia, and the United Arab Emirates are amongst the fastest-growing nations in the region with respect to IoT. The market size of IoT in Saudi Arabia is expected to grow at an annual rate of 10% until 2025, surpassing the $27 billion thresholds, per a state official. And if it's worth anything, they were the first country to grant citizenship to a robot, so we will continue to hear more about them in the future when it comes to investing in technology. (Reference: AImultiple)

IoT's Role in Future Industry Developments

The following are everyday devices/services/jobs that would get the most overhaul thanks to IoT advancement (Reference: AImultiple):

- **Cars:** With the supply increase of 5G network around the globe, carmakers will be able to take advantage of IoT's potential to increase the production, efficiency, and safety of driverless cars.
- **Smart cities:** More cities will be able to automate, remotely manage, and collect data through devices like visitor kiosks, video camera surveillance systems, bike rental stations, and taxis. In addition, they will invest in more IoT ecosystems that track data and allow for appropriate measures to be taken for resource management, traffic control, city planning, crime curtailing, and more.
- **Smart buildings:** Smart buildings in the EU (see Figure 4) are on the rise. By leveraging data from a multitude of devices and sensors, smart buildings are creating a productive environment for the occupants by lighting, thermal comfort, air quality, physical security, sanitation and more at lower costs and environmental impact than buildings that are not connected.
- **Machine learning:** Smart home hubs, thermostats, lighting systems, and even coffee makers collect data on your habits and patterns of usage. In most cases, the data is collected to help facilitate training of IoT devices that leverage machine learning to improve algorithm accuracy and predictions. Having access to larger amounts of data means machines can draw upon more resources to make themselves more integral to our everyday lives.
- **Banking and finance:** Banks will expand their use of sensors and data analytics to collect more data to provide us with personalized services.
  - IoT in banking has the potential to help consumers cultivate healthy financial habits and curtail indulgences and improve the quality of banking experience.
- **Agriculture:** Since 1990s, there has been a decrease in the worldwide employment in agriculture relative to the global workforce. One reason as to why that's happened is the increase in automation and IoT related technologies being used in agriculture. That has led to more food and greens of higher quality than ever before being brought to our dinner tables with less human intervention. That trend is only likely to continue more forcefully in the future.



Role of Mobile Operators in IoT Development

With 412 million unique mobile subscribers and 93% mobile broadband population coverage in MENA, mobile technology contributes to this goal as a provider of critical infrastructure and a platform that allows micro-, small and medium-sized enterprises (MSMEs) to serve bigger markets.

Meanwhile, improvements in network coverage and resilience along with higher smartphone use have better enabled the region to cope with disasters and conflicts, particularly in war-torn countries such as Syria and Yemen. Smartphones have been used by refugees to find safe passage and communicate with friends and family, while mobile applications are used to provide health and education solutions to those fleeing conflict.

SDG 9 aims to build reliable infrastructure, promote inclusive and sustainable

industrialisation, and foster innovation. It also seeks universal and affordable internet access in less developed countries to support economic development and wellbeing.

Mobile's catalytic effect on adjacent sectors also helps explain the high score for SDG 9 in MENA. The connectivity provided by mobile operators enables verticals to take advantage of technological advancements in IoT, AI and big data analytics, which can in turn support digital transformation programmes.

For example, in Turkey, 72% of enterprises are deploying IoT as part of a wider digital transformation agenda, compared to 63% globally.

Mobile operators are playing an increasingly prominent role in the rapidly expanding IoT ecosystem in MENA, where IoT applications are often focused on smart city solutions, as governments aim to improve the quality of urban living and environmental impact of cities. As of February 2022, seven mobile operators in five countries – Israel, Qatar, Saudi Arabia, Turkey and the UAE – had launched commercial low-power widearea (NB-IoT and LTE-M) networks. *(Source: GSMA)*

Case in Point: IoT in Saudi Arabia

The Saudi Vision 2030 has allocated a great deal of support to the IT sector and affirmed full support for creative and innovative thinking to motivate the Saudi youth. IoT is emerging now and Saudi Arabia is taking the lead in the region with this mega event for enabling infrastructure or increasing the infrastructure capacity for the Internet in line with Saudi Vision 2030. *(Source: GSMA)*

This further complements the government plan to expand the broadband Internet services to 70 percent of the remote areas by 2020 and to all citizens subsequently, thus becoming a digital nation with an efficient Internet connectivity, and reaching the cornerstone for the IoT, he added.

This primary program in achieving the Kingdom's vision 2030 promotes digital transformation in the Kingdom. It provides strategic guidance, expertise, and supervision through cooperation with government and private agencies to raise the Kingdom's index globally. It aims to realize the highest digital development through sustainable economic development, enhancing innovation and values through investing in young talent.

The Digital Transformation in the Kingdom is supported by the adoption of the necessary legislation and regulatory framework. It aims to regulate the key aspects of the digital transformation, such as digital identity, digital signatures, data exchange and interoperability, data protection, cybersecurity, open data, freedom of information, transparency of Government spendings, and the adoption of Emerging technologies (Artificial Intelligence (AI), Blockchain, Internet of Things (IoT), Big Data, etc.).

Saudi Arabia Internet of Things (IoT) market was valued at USD2016.86 million in 2021 and is projected to grow around USD5391.15 million by 2027 owing to the proliferation of technologies such as ZigBee, rising NFC demand and increasing usage of Bluetooth and Wi-Fi. Moreover, rise in cloud platform adoption, development of wireless networking technologies like 5G is likely to propel Saudi Arabia Internet of Things (Internet of Things (IoT)) market during forecast period.

stc Group are strong believers in the IoT as a key element of the complete digital ecosystem they are operating. stc Group know that that adopting and integrating advanced technologies will boost the Kingdom's prospects and bolstering its economy. Ultimately, it aims to help realize the country's considerable potential and achieve its Vision 2030 goals by accelerating the digital transformation of its burgeoning and thriving industries. To this end, stc has focused on modernizing the nation's industrial landscape, spurring the shift from traditional factories to automated facilities powered by robots and artificial intelligence.

By surveying more than 328 organizations from a broad cross-section of industries and sectors, the Communication and Information Technology Commission concluded that 57% of these entities have already adopted IoT solutions or are in the process of conversion to it. According to the study, 25% of organizations are actively working to implement plans to adopt these technologies over the course of the next two years. Subsequently, stc Group has diligently set about becoming the Kingdom's leading digital enabler in IoT.

Leveraging its resources, expansive network, ecosystem and advanced infrastructure, the group has pioneered novel ICT solutions and digital services that have stimulated the growth and development of the Kingdom's diverse range of sectors. For instance, stc has played a key role in the development of leading technical products, such as “hologram doctor” and healthcare and telemedicine technologies.

Also, Smart homes have benefitted greatly from IoT innovations and are becoming more and more commonplace. Consequently, stc has been at the leading-edge of smart home innovations, with the introduction of its state-of-the-art "myhome" device offering users access to an extensive suite of smart solutions all over the house that can be controlled remotely. In fact, a "Markets and Markets report" projected the global smart home market to experience a compound growth rate of 14% between 2016 and 2022, with its value ballooning to approximately 122 billion US dollars.

stc has strived to enhance the infrastructure of the Kingdom's industrial cities in mind — with the backing and under the supervision of the Industrial Cities Authority, by collaborating together to empower local factories with the latest networking and digital services, broadband and 5G technologies.

These technologies will enable factories to harness the power of data and insights to make faster and more accurate decisions. Industrial IoT solutions are used in smart factories and contain connected sensors that help to monitor facilities' machines, environment, and needs; ensuring compliance with given specifications and standards. This data enables manufacturers to reduce costs and avoid interruptions of the production processes.

Similarly, IoT technologies enable the transformation of traditional ports into smart ports through the use of IoT sensors and large data systems. These solutions support the accurate tracking of ships' movement to and from warehouses, facilitating smooth and streamlined imports, aiding merchants and directly linking port facilities.

Lastly, stc works with a global network of partners to transform the Kingdom's ports into smart ports by linking them to 5G networks. This is essential for helping these ports find solutions to the challenges presented by equipment failure, treatment of congestion in loading and unloading stations, safeguarding workers, and preserving the environment through private cellular networks. The group will provide IoT systems to automate the work of bridge and quay cranes, and docking planning at port berths, in addition to managing the movement of freight and loading trains, fleets of land trucks and the handling of containers in storage spaces.

> *"We will continue working on accelerated pace, providing the latest technological solutions in addition to developing a reliable digital infrastructure within our digital ecosystem. This will boost the Kingdom's position as a leading digital service center through innovative projects and global partnerships. Thus, enabling the digital transformation of the public and private sectors will reflect in strengthening the digital economy in harmony with the Kingdom's Vision 2030.*
>
> ***Olayan Mohammed Al-Wetaid, CEO, stc group***

stc group CEO Alwetaid stated, "We will continue working on accelerated pace, providing the latest technological solutions in addition to developing a reliable digital infrastructure within our digital ecosystem.

This will boost the Kingdom's position as a leading digital service center through innovative projects and global partnerships. Thus, enabling the digital transformation of the public and private sectors will reflect in strengthening the digital economy in harmony with the Kingdom's Vision 2030.

Challenges for IoT Deployment

The IoT market has exploded in recent years; however, IoT device manufacturers and consumers face significant challenges related to IoT data collection and management. These include the following *(Source: firstpoint):*

1. Data Security

Some IoT devices collect highly sensitive information. In the healthcare industry, the data collected by IoMT devices include protected health information (PHI). Internet-connected cameras, voice assistants, and similar tools can monitor peoples' activities and conversations. IoT devices used in manufacturing have access to sensitive information about manufacturing processes and procedures.

Securing this data is a common challenge for IoT devices. These devices are frequently designed to be accessible from the public Internet due to their need to send data to cloud-based servers for processing and are managed from mobile devices and web-based portals. As a result, they have notoriously poor security. Some common IoT security issues that can endanger the sensitive data that they contain include:

- Poor Password (other unique identifier) Security: IoT devices are often deployed with default, weak, and hardcoded passwords, keys, or secrets. Cybercriminals exploit this poor password security to gain access to these devices, which provides access to the devices and the data they collect and process.
- Unpatched Vulnerabilities: IoT manufacturers are largely unregulated and often have poor secure development practices, leading to vulnerable products being shipped. IoT devices are commonly deployed on a "set it and forget it" basis, without patches applied for newly discovered vulnerabilities. As a result, many IoT devices contain vulnerabilities that an attacker can exploit.

2. Data Privacy

Much of the information collected and processed by IoT devices may be protected under various data privacy laws. The EU'S General Data Protection Regulation (GDPR) protects any data that can be used

to uniquely identify an EU citizen, including their name, address, phone number, medical data, and more. The US Health Insurance Portability and Accessibility Act (HIPAA) protects the types of PHI that an IoMT device would collect. Most IoT devices are likely to gather at least one type of protected information.

In addition to securing this protected data against attack, IoT device manufacturers and users must protect it per applicable laws. Some important considerations include:

1. Consent to Collection: Under the GDPR and similar laws, data subjects must provide explicit consent to collect their personal, protected data. With IoT devices, this can be difficult as devices may inadvertently collect data without the appropriate permission. For example, voice assistants may overhear conversations that collect protected personally identifiable information (PII) or other sensitive data.
2. Consent to Processing: In addition to consent to data collection, GDPR and other laws require explicit consent from data subjects for their data to be processed. With IoT devices, massive amounts of data are collected and processed, making it challenging to monitor how data will be processed and get consent for that processing.
3. Encryption: Data protection laws require data to be encrypted at rest and in transit to protect against unauthorized access and misuse. IoT devices often have limited power and processing resources, making appropriate data encryption difficult. As a result, these devices may not always be designed to meet regulatory requirements for protecting the data that they collect.
4. Access Management: Data protection laws like GDPR, HIPAA, and others mandate that access to sensitive information be limited to those who require it for their roles. IoT devices are designed to be distributed and have their data processed on cloud servers, making it more difficult to track and control access.
5. Jurisdiction: The GDPR restricts the data from EU citizens from being transmitted to countries that do not have "adequate" data protection laws in place. With IoT devices and their cloud-based processing servers, tracking and limiting data flows can be complex.

Data protection laws like GDPR, HIPAA, and others mandate that access to sensitive information be limited to those who require it for their roles. IoT devices are designed to be distributed and have their data processed on cloud servers, making it more difficult to track and control access.

3. Data Volume

The Internet of Things is snowballing, and IoT devices produce massive amounts of data. In 2019, IoT devices generated an estimated 18.3 zettabytes of data, which is expected to grow to 73.1 ZB by 2025.

The sheer volume of data IoT devices produces turns storing, transmitting, and processing it into significant challenges. IoT devices are commonly deployed in remote locations with limited Internet bandwidth, making it difficult and often expensive to transmit the collected data. In the cloud, servers must rapidly process and analyze growing volumes of data to extract essential insights and send any required alerts or commands to the IoT devices.

4. Data Complexity

Many IoT devices are designed to adopt a Big Data mentality. These devices collect as much information as possible and send it to cloud-based servers for processing. In addition to producing massive volumes of data, this approach also creates complex datasets.

The data produced by IoT devices is often unstructured and provides a limited perspective. This data must be carefully timestamped, indexed, and correlated with other data sources to make the context required for effective decision-making.

This data volume and complexity combination makes it difficult to effectively and efficiently process data from IoT devices. Many tools designed to manage complex datasets cannot cope with the volume of data that IoT devices produce. On the other hand, solutions that can handle massive volumes of data may not offer the required level of in-depth analysis and may not meet the latency requirements of IoT devices.

China Mobile | International

Together we evolve

The complete suite of high-quality iConnect products and services, ranging from global Voice, SMS, Data, Mobile to IoT and professional services, is built on one of the world's largest and most technologically sophisticated networks. iConnect is your connect-all carrier solutions that empower you to strive for even greater success in the journey of global connectivity.

To realize the potential of 5G, cloud, AI and IoT, CMI evolves with you to drive digital transformation and seize every opportunity.

BEST MOBILE/5G SERVICE INNOVATION
Global Carrier Awards 2021

BEST CLOUD INNOVATION
Global Carrier Awards 2021

BEST IoT SOLUTION PROVIDER
CC-Global Awards 2021

180+ POPs SMS 70+ Cable Resources

CUSTOMER VOICE CARING IOT INNOVATION

iCONNECT

DATA Your Connect-All Carrier Solutions INSIGHT INTEGRATION

PRO COLLABORATION MOBILE

100T International Transmission Bandwidth

Website LinkedIn

cmiiconnect@cmi.chinamobile.com

Building a Green Supply Chain and "Low-Carbon" International Infrastructure

中国移动 China Mobile | International

Countries around the world have been coming up with a variety of creative "double-carbon" goals to tackle the global energy crisis. The principles of "carbon peak, carbon neutrality", have also been adopted as a social responsibility by the information and communication technology (ICT) industry to meet increased demand for low-carbon ICT networks, with utmost urgency.

Currently, major international operators are formulating carbon-neutral network strategies, with more than 29 operators in the International Telecommunication Union (ITU) announcing their carbon reduction targets. For instance, British operator Vodafone targets a 50% carbon reduction by 2025 and carbon neutrality by 2040. Spanish Telefonica has set its sights on 50% carbon reduction by 2025. French operator Orange targets carbon neutrality by 2040, while the carbon-reduction leader Deutsche Telekom has initiated a green network strategy in 2017 and has already achieved carbon reduction of 60%.

China's communications services industry is expanding rapidly, and it is estimated that carbon emission values will reach US$ 15 billion by 2030, with reference to the current carbon emission volume trajectory by Chinese operators. Therefore, Chinese operators have proactively formulated relevant pinpointing strategies, with the aim of helping our country achieve the "double-carbon" target, and simultaneously motivating "self-greening revolution". This ultimately enhances our competitiveness and sustainable development.

China Mobile's "low-carbon" network construction and operation mode

In light of China's "double-carbon" goals, the construction of communication networks and operation models is increasingly moving in the low-carbon and high effectiveness direction. China Mobile has been proactively studying and implementing "low-carbon" network construction and operation models.

First and foremost, when promoting the transformation of communication energy to information energy, it is crucial to deeply integrate ICT technology with energy technology, fully achieving the digitization, networking and intelligence of energy conversion, storage and control. It can also help attain high-density integration, efficient operation, and smart maintenance. Simultaneously, to construct a low-carbon energy network for sustainable ICT requires building an integrated network from components to systems, adopting both renewable and traditional energy through technological advancement, product innovation and application.

> *In light of China's "double-carbon" goals, the construction of communication networks and operation models is increasingly moving in the low-carbon and high effectiveness direction. China Mobile has been proactively studying and implementing "low-carbon" network construction and operation models.*

Secondly, China Mobile's top-down planning and design of low-carbon solutions is sophisticated, comprising construction, operation, maintenance, and management dimensions, for a comprehensive strategy with low-carbon network construction, operation and maintenance. For example,

> *China Mobile's top-down planning and design of low-carbon solutions is sophisticated, comprising construction, operation, maintenance, and management dimensions, for a comprehensive strategy with low-carbon network construction, operation and maintenance.*

replacing manual inspection with remote inspection reduces ineffective site visits and therefore carbon emissions from vehicles. Substituting mobile oil engine generation with mobile energy storage in the process of operation and maintenance reduces carbon emissions from oil engines. This ongoing digitalization of infrastructure and systems reflects the importance China Mobile places on power consumption and making energy efficiency visible, manageable, and controllable. It also helps avoid high energy consumption when using the equipment.

In response to surging demand and energy construction challenges relating to 5G technology, China Mobile has rolled out a series of innovative energy-saving products and solutions. The 5G Power Cabinet, an integrated base station power system, can help realize one cabinet for one site and dynamic cooling for the construction of base station. For Multi-access Edge Computing (MEC) construction, the outdoor comprehensive cabinet is launched to meet the needs of all-in-one cabinet for installation, power supply, cooling and storage of various types of ICT equipment. These solutions need less installation space and modification, ensuring fast deployment. By deploying these energy management solutions,

the facility construction period can be shortened by about 90%, while reducing investment by 30% to 40% and land area by 30%-60%. It also improves energy efficiency by 8% to 17% and facilitates 5G as well as the construction and operation of low-carbon data centers. This solution has been launched and applied to operators in China, Thailand, Pakistan and other countries and regions, and has received positive feedback.

China Mobile comprehensively deploys global 'low-carbon' digital infrastructure

The China Mobile Sustainable Report 2021 was officially published in June 2022. The report illustrates that China Mobile has implemented a "Green Action Plan" for 15 consecutive years, proactively exploring organic and unified energy-saving and emissions reduction for itself, industry and society as a whole, while promoting sustainable development. As China Mobile's subsidiary, China Mobile International (CMI) has also been consistently promoting carbon reduction and energy saving, building green data centers.

In 2020, CMI Global Network Center (GNC), located in Hong Kong, has reduced carbon emissions over 1.53m kg and saved electricity consumption over 3.06m kilowatt hours. The China Mobile Guangdong-Hong Kong-Macau Greater Bay Area Hong Kong Fo Tan Data Centre under construction is adopting a low-carbon approach for Fo Tan Data Center, which will have an average power usage effectiveness (PUE) rating of less than 1.3 and an extended life expectancy. The new data center will be equipped with an AI system to maximize efficiency in six critical areas: Material & Resources, Water Efficiency, Energy Efficiency, Sustainable Sites, Smart Building and Transportation and Indoor Environmental Quality. This approach aims to explore energy conservation and emissions reduction for greener data centers. With a focus on robust infrastructure, life-cycle impact reduction, sustainability, green-planting, renewable energy, AI technology and green certification, CMI is positioning Fo Tan Data Center as a reliable and environment-friendly data center and an industry leader.

CMI insists on green development and operates green data centers. At the beginning of the construction of each data center, the priority is given to energy saving and emission reduction. Firstly, our data centers are adopting high efficiency and low carbon intelligent technology with higher temperature and AC direct supply power distribution architecture

CMI is committed to creating three-dimensional, high-speed infrastructure of "cable systems, PoPs and data centers' to empower digitalization and intelligence. Currently, CMI has more than 70 submarine and land communication cables worldwide, successfully surpassing the 110T international transmission bandwidth, with up to 225 PoPs .

The new data center is also aiming for green building certifications such as BEAM Plus and LEED Gold.

CMI is committed to creating three-dimensional, high-speed infrastructure of "cable systems, PoPs and data centers' to empower digitalization and intelligence. Currently, CMI has more than 70 submarine and land communication cables worldwide, successfully surpassing the 110T international transmission bandwidth, with up to 225 PoPs . There are 4 self-owned data centers in Hong Kong, China (launched in Nov 2014), Singapore (launched in July 2019), London (launched in Dec 2019) and Frankfurt (launched in Feb 2021). With Hong Kong, China as its launchpad, CMI has significantly accelerated global IDC development, creating a strong network for data center cloudification.

CMI insists on green development and operates green data centers. At the beginning of the construction of each data center, the priority is given to energy saving and emission reduction. Firstly, our data centers are adopting high efficiency and low carbon intelligent technology with higher temperature and AC direct supply power distribution architecture. A data center with the capability of loading 200,000 servers can reduce electricity consumption up to 120m kilowatt hours per year. Secondly, the data center is equipped

with a series of intelligent IoT technologies including intelligent temperature and humidity sensor, intelligent air sensing, intelligent lighting control with motion sensor, intelligent door control, intelligent server racks, intelligent cleaning. More than 100,000 nodes in the whole data center realize intelligent collection and intelligent sensing, reducing data center cooling load and carbon emission.

To operate its data centers more efficiently, CMI is constructing an AI platform to adjust each unit to achieve the best operating conditions. Each data center is equipped with an AI system using machine learning algorithms, data model training, AI neural network analysis etc., to help analyze IT load, data room temperature and humidity, outdoor temperature and humidity monitoring data in real time, which can respond to adjust the operating parameters of the air conditioner, the exhaust fan, the central chiller water temperature, and the chiller pipeline valve, to reduce the energy consumption of the air conditioning system.

> *Through exploring how renewable energy could be used around data centers including plants irrigation, pest control, CMI aims to increase the coverage of afforested areas exceeding 20% of the whole area and increase oxygen emissions.*

Through exploring how renewable energy could be used around data centers including plants irrigation, pest control, CMI aims to increase the coverage of afforested areas exceeding 20% of the whole area and increase oxygen emissions. It will also enhance the intelligent cloudification of data centers, through employing robots and non-contact lifts. Meanwhile, CMI will actively participate in energy conservation projects organized by the government and NDPB and cooperate with eco-friendly suppliers.

In the future, CMI will continue to pursue sustainable development as part of its corporate social responsibility, adhering to the principle of low carbon and environmental protection. It will also be an advocate to raise public awareness of the opportunities presented by green development, and a leader in achieving "carbon peak and carbon neutral" in China, as well as providing quality and professional one-stop services for more overseas Chinese enterprises to create a green ICT industry ecosystem.

your business data is safe at home

with a data center inside the Kingdom from stc

stc.com.sa/**business**

stc

MEMBERS NEWS

stc Expands Complete Digital Ecosystem with Cable to EU

stc group's MENA Hub to build East to Med Data Corridor (EMC) undersea and land fiber optic data cable that will link Europe with Asia, with Greek partners. stc's MENA Hub with this new project shows the nature of its ambition to provide every increasing global connectivity and data center capacity to the markets of Asia, Europe and the rest of the world through Saudi Arabia which sits at the geographic heart of these key economies. This is another illustration of the increasing scale, scope, and pace of stc group's transformation as a digital company and as it builds out a world leading complete digital eco-system. As the world accelerates towards an increasing digital connectivity of businesses and people it is essential that business can offer all aspects of this world for the benefit of businesses and the customers and clients they serve. That is why stc have also developed separate but connected IoT businesses to facilitate the analysis and implementation of greater efficiency and effectiveness of multiple operations to running multi-billion dollar manufacturing or logistics facilities. stc's investments in cloud computing and data centers provides the capacity for the ever-increasing analysis and storage for data as we head towards the world of quantum computing. With increasing digital connectivity comes the need to protect businesses and companies. sirar, stc's cybersecurity arm, with access to and comprehension of the complete eco-system which stc has created is ideally placed to handle and address these current and future requirements as they arise. Only by owning, combining, integrating and coordinating every aspect of the digital world, can stc offer the end to end solution and latency, effectiveness and efficiency that tomorrow's businesses and customers demand. Regarding the signing, the Group CEO, Eng. Olayan Mohammed Al Wetaid, said "this important signing represents another validation of the execution of our DARE2.0 strategy as we build out our complete digital ecosystem at expanding scope, increasing scale and accelerating pace. We are pleased to be building out even further our integrated system for the benefit of our clients and customers, as we look to further establish our digital credentials and contribute to Vision 2030 and become a leading digital company and regional digital hub linking three continents."

stc Boosts the 5G Network Capacity by Over 60%

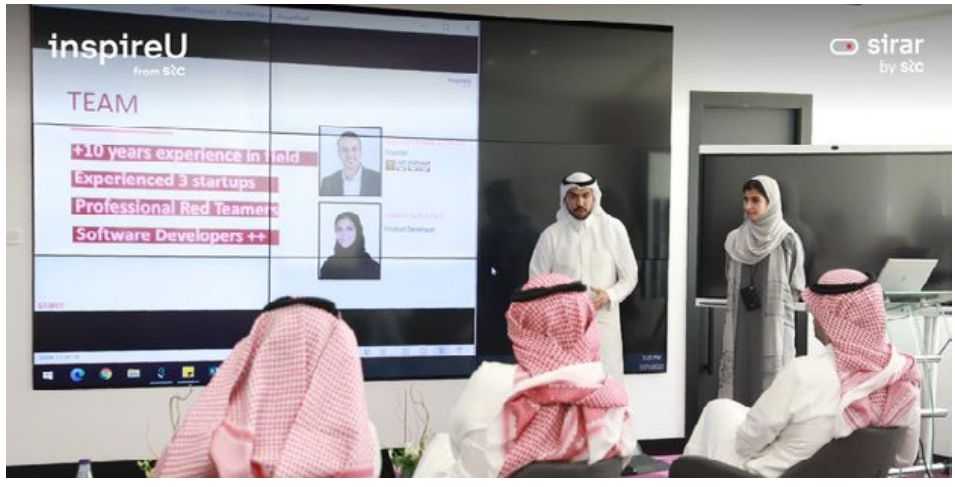
stc the leading Digital Enabler in the Kingdom has developed its 5G Infrastructure Capabilities through utilizing a new additional 5G spectrum to be the 1st Operator in MENA Region to enable 5G Carrier Aggregation technology. This is expected to boost the 5G network capacity up to 60% and improve download speeds for its subscribers. This development plan utilizes 2.3GHz band for 5G on more than 1000 sites as an initial phase, through reuse of the spectrum resources initially used for 4G which affirms stc's strategic commitment to adopt cutting edge technologies and services. The use of 5G Carrier Aggregation technology is expected to aggregate the new 2.3GHz carrier to the main 5G carrier on 3.5GHz, to augment the overall 5G network capacity and elevate speeds into global-ranking levels. Eng. Bader Alluhaib - stc Infrastructure VP has stated: "In stc – as per our leading position in strengthening the Kingdom's status in the global Telecom sector – we are restlessly working – with the support of our partners – to develop our infrastructure capabilities, and introducing the latest solutions and technologies to enrich our subscribers experience and improve the Kingdom's global ranking. As the leading Operator in the Kingdom, we are planning to adopt these advanced solutions in a larger scale throughout the upcoming years as an integral part of the 2030 Vision". Eva Andrin – Deputy VP for Saudi and Egypt in Ericsson, stc's Technology Partner has stated: "Ericsson's 5G Carrier Aggregation solution - which employs Advanced Radio Coordination technologies – provides a breakthrough change in enhancing 5G coverage, boosting capacity and improving 5G users experience. Ericsson is devoted to provide stc with such innovative solutions to uplift its network capabilities, to outreach new horizons towards the Kingdom Vision" stc expects to conclude this development within this year, to act as a new step in stc journey to enrich its subscribers experience and spread 5G technology into larger scales in the Kingdom.

stc Launches "Saudi Vision Cable", the First High-Capacity Submarine Cable in the Red Sea

stc announced the landing of "Saudi Vision Cable,"; which is the first high-speed cable in the Red Sea through its first landing station in Jeddah. With the name inspired by the KSA Vision 2030, the Saudi Vision Cable spans 1,160,000 meters and it is fully owned by stc Group. The Saudi Vision cable is the first ever high-capacity submarine cable in the Red Sea region that will provide seamless connectivity up to 18Tbps/fiber pair with a total of 16 fiber pairs through four (04) landings in Jeddah, Yanbu, Duba, and Haql. Marking this event, Eng. Olayan Bin Mohammed Alwetaid Group, CEO of stc, said: "This achievement reflects our comprehensive strategy that aims to diversify the Group's investment opportunities and support digital transformation in the KSA by boosting the digital infrastructure. The cable will provide digital connectivity services for corporates and individuals between the KSA and the continents by building a regional digital hub connecting the continents of the globe and help meet the needs of companies and customers via an integrated digital ecosystem". "Saudi Vision Cable provides communication between several international information centers. It also achieves the raising level of the unified optical fiber platform that is cost-efficient and flexible, and provides access – low latency - to all international cables in the landing stations and information centers of the stc Group", he added. The new cable will be one of the submarine cables that will be linked to the MENA Hub connecting three continents of the globe, leveraging the strategic location of KSA. This will help to enhance investment in international communication services and data centers. This cable will join 16 cables invested by stc that are positioned between the east and the west of the KSA. Saudi Vision cable will provide a higher and more reliable internet service to meet the increasing demand for communications and internet at the local and international levels. It will also allow all of the country's sectors to obtain high-speed internet services, including education, healthcare and business which will, in general, provide economic and social benefits.

inspireU Program Embracing 18 Projects in Its 9th Intake

stc Group's inspireU entrepreneurs support program announced the selection of incubated projects in the final phase of the 9th intake. The program embraced 18 projects, including Spoilz games provides services to game developers, win provides the sale and purchase of surplus industrial inventory of oil and petrochemical products between industrial companies, Sirdab serves business owners to instantly configure and manage their cloud repositories, Fraim app connects production companies to advertising service providers such as photographers, Qparts provides technical solutions in the field of auto parts and OPETA specializes in artificial intelligence and data analysis, which provides a platform that serves the restaurant and café sector. In addition to Autoly Inc. application that specializes in AI / ML technology to help drivers and companies maintain their cars through damage analysis capability, "Moeco" platform for logistics solutions, provides low-cost tracking devices, "Flashlead" platform that provides a cloud-based software for customer management to improve corporate performance and increase sales, "Nugttah" platform, brings restaurant or café owners closer to their customers to allow them to order digitally, "Clevr" platform, supports small and medium enterprises in the retail sector, "Oumlapay" platform, provides a payment gateway that enables companies to accept, organize and transfer encrypted payments, "Nabt Agri Tech" platform that connects farmers and importers of fresh goods to business owners. "Yamm Pay"



platform that provides the latest "Buy Now, Pay Later" solutions, the "Siolla" application that helps individuals to invest their surplus funds, and the "FKEACI" platform to verify customers identity by using the artificial intelligence and automated learning to detect plagiarism. Innovation Pioneers (IPSA) provides an innovative and secure authentication system that enables their users to verify remotely using encryption technologies to reduce cyber risks and "Sabry" simulates phishing and automate response to email incidents. These projects were qualified out of more than 600 projects applied for the 9th intake of the program after they passed all the levels of screening, which included presenting eligible projects in the final stages to the arbitration committee, which is based on evaluating them on several criteria, including the quality of the idea, the work team, the possibility of expansion, and the business model. Where rental committee of the arbitration has interviewed with projects founders and chose the best projects to embrace them in the ninth intake to benefit from inspireU services. The Chief investment officer, Motaz Alangari said: "The inspireU program in this intake included a special tack to support projects in cybersecurity in cooperation with sirar from stc group, the digital provider of cybersecurity services. Alangari stressed that the establishment of this track aims to enhance local content and enable digital cyber projects, by providing a specialized workshops and technical advisory sessions for this track. " It's also worth mentioning that the inspireU program since its launch in 2015 has been able to incubated 75 emerging projects in various fields, as graduate companies have obtained investments worth more than 500 million Riyals, while the market value of these investments amounts to more than 10 billion Riyals, and inspireU projects use more than 40 million users, and financial transactions for incubated projects worth more than 12 billion riyals, and contribute to the creation of 600 thousand jobs in the market of the region.

stc's Revenues for Q2 and First Half Of 2022 Compared to the Comparable Quarter and First Half of Last Year Increased by 6.54% & 7.39% Respectively

stc announced the company's preliminary financial results for the period ending at 30 June 2022:

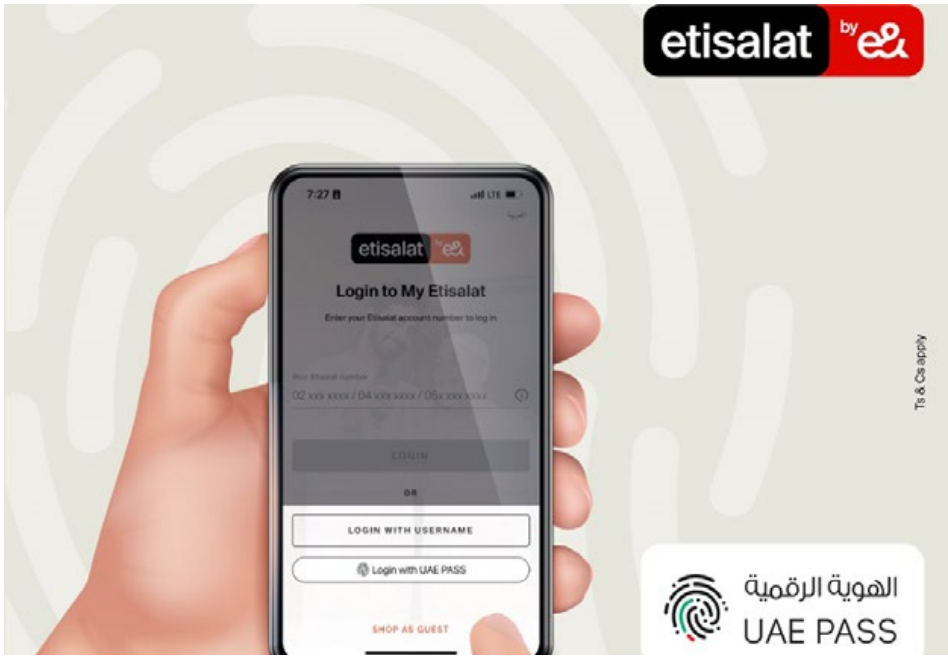
- Revenues for the 2nd quarter reached SAR 16,939m with an increase of 6.54% compared to the corresponding quarter last year. For the first half of 2022, the revenues reached SAR 33,930m an increase of 7.39%.
- Gross Profit for the 2nd quarter reached to SAR 9,174m with an increase of 9.84% compared to the corresponding quarter last year. For the first half of 2022, the Gross Profit reached SAR 18,324m with an increase of 8.37%.
- Operating Profit for the 2nd quarter reached to SAR 3,720m with an increase of 14.46% compared to the corresponding quarter last year. For the first half of 2022, the Operating Profit reached SAR 7,543m with an increase of 12.05%.
- Earnings before Interest, Taxes, Zakat, Depreciation and Amortization (EBITDA) for the 2nd quarter reached to SAR 6,204m with an increase of 10.25% compared to the corresponding quarter last year. For the first half of 2022, the Earnings before Interest, Taxes, Zakat, Depreciation and Amortization (EBITDA) reached SAR 12,504m with an increase of 9.03%.
- Net Profit for the 2nd quarter reached to SAR 2,837m with an increase of 0.57% compared to the corresponding quarter last year. For the first half of 2022, the Net Profit reached SAR 5,872m with an increase of 1.71%.

In accordance with the approved dividend policy for three years starting from the 4th quarter 2021, which was announced on 27 September 2021, and has been ratified during the Ordinary General Assembly Meeting on November 30th 2021, stc will distribute a total of SAR 1,997.5 million in cash dividend to the shareholders for the 2nd quarter 2022, representing SAR 1 per share as the total number of Treasury shares related to the Employees Stock Incentives Plan stood at 2,499,963 shares at the end of the second quarter 2022 and those shares are not entitled for any dividends distribution. The eligibility of dividends shall be for the shareholders at the close of trading on Sunday 07-08-2022 and as per the registered shareholders in stc's shareholders registry in the Depository Center at the end of the 2nd trading day following the eligibility date. Dividend distribution date will be on 25-08-2022. Consequently, Alwetaid stated, "Among these investments is the establishment of a major digital center for the Middle East and North Africa "MENA HUB" with capital of nearly SAR 4 billion, which will strengthen the Kingdom's position as a significant digital center in the region and the world. Moreover, a new company in the field of IoT was established in partnership with the Public Investment Fund (PIF) to

support IoT technologies in the Kingdom through stc's reliable digital infrastructure to take advantage of the expected growth and increasing demand for its services and products. Adapting to the ICT acceleration pace, Solutions by stc (one of the group's subsidiaries) announced its acquisition of 89% of Giza Systems Company and 34% of the remaining share - not owned by it - in its subsidiary, Giza Arabian Systems, to expand and diversify its products and services to meet customers' demand. This acquisition also enhances Solutions by stc's position and leadership in enabling digital transformation in the Kingdom and the region. Alwetaid confirmed, "These investments reflect stc group commitment of achieving its strategy to expand in scope and scale to be aligned with Kingdom's digital transformation acceleration pace, diversify investments and build a comprehensive digital ecosystem." In line with the objective of supporting the group in achieving its "DARE 2.0" strategy that aims for expansion, growth, and maximizing shareholders' return through increasing and diversifying investments and seizing growth opportunities in the telecommunications and information technology sectors in the Kingdom and the region; stc's board of directors recently recommended increasing the company's capital by 150% to reach SAR 50 billion by granting bonus shares through capitalizing SAR 30 billion from retained earnings. Finally, Alwetaid stated, "We are proud of the achievements made during the past. We will continue working on accelerated pace, providing the latest technological solutions in addition to developing a reliable digital infrastructure within our digital ecosystem. This will boost the Kingdom's position as a leading digital service center through innovative projects and global partnerships. Thus, enabling the digital transformation of the public and private sectors will reflect in strengthening the digital economy in harmony with the Kingdom's Vision 2030.

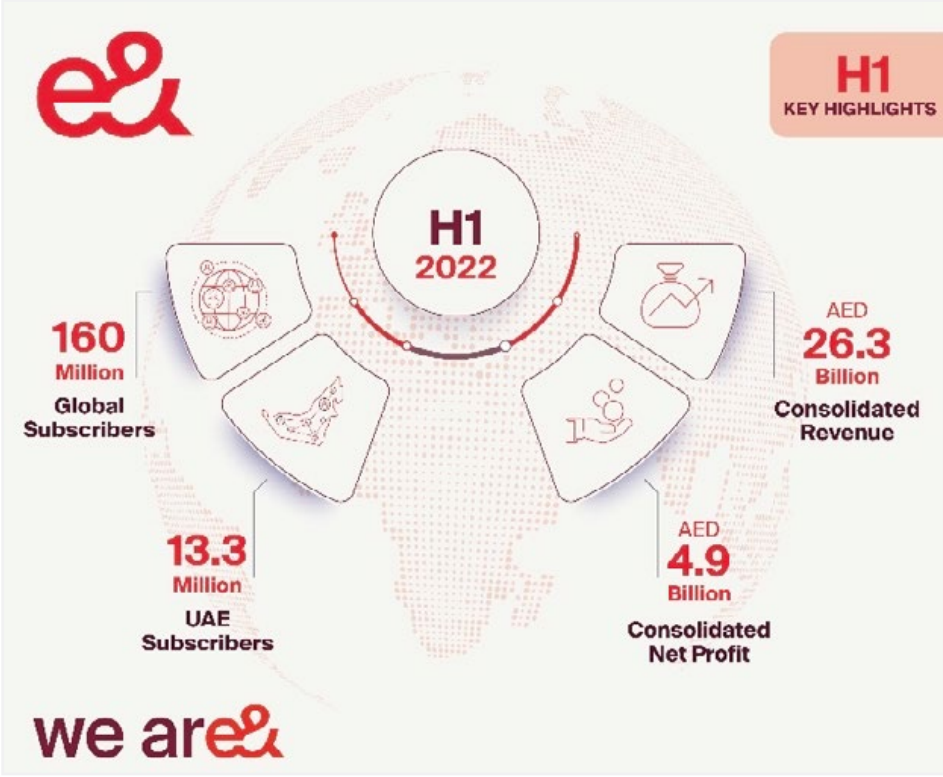
etisalat by e& Enables UAE PASS Login on App and Portal

Etisalat UAE, branded as etisalat by e&, announced the integration of the UAE PASS login on the 'My Etisalat UAE' app and portal (www.etisalat.ae), enabling all subscribers to seamlessly log in with their secure national digital identity details. UAE PASS is the first secure national digital identity for citizens and residents, allowing users to access many online services across various sectors, sign and authenticate documents, perform transactions digitally and request a digital version of their official documents. In partnership with etisalat by e&, all customers with a verified UAE PASS account can use the UAE PASS authentication to access accounts registered against their Emirates ID with this new login feature. This bolsters security and combats fraud for users, making it convenient and popular among subscribers. Additionally, etisalat by e& has made it possible for subscribers to register for the UAE PASS on its app and website without the need to go to any physical outlet. etisalat by e&'s continuous efforts to digitize customer journeys now offer a 'zero-touch' experience with a focus on enhancing digital channels such as apps, websites and social media, optimizing contact center performance with the introduction of virtual agents, and revamping and digitizing its stores. This integration of the national identity across the digital channels is in line with etisalat by e&'s main objective to combine the optimum mix of physical and digital channels and offer a truly omnichannel and digital-first experience. A superior and differentiating customer experience is a foundational block in etisalat by e&'s transformation into a digital telco. The company is harnessing the power of analytics and AI to offer personalized experiences across all digital and physical channels. The digital experience of customers is enhanced through the 'My Etisalat UAE' app as they can fully view and make all their required transactions on the app, such as access and payment of bills, account management, plan changes, and contract – all these are now accessible via an easy log in with UAE PASS. Other features include buying devices, subscribing to new services or troubleshooting technical issues are also available using the self-care support modules on the app. To further enhance customer experience, both the app and website interfaces are undergoing a full revamp along with additional features. Currently, there are more than 4 million customers who are actively using the 'My Etisalat UAE' App on a regular basis.



e& Reports Consolidated Net Profit of AED 4.9 billion for H1 2022, Up 2.5 Percent

e& (formerly known as Etisalat Group) announced its financial results for H1 2022. Key operational highlights and developments for H1 2022:



e&:

- Board approves interim dividend of 40 fils per share for H1 2022
- Acquired approximately 2,766 million shares in Vodafone Group Plc ("Vodafone"), representing 9.8% of Vodafone's issued share capital (excluding treasury shares)
- Completed the acquisition of elGrocer, under the Smiles brand
- Launched region's first Telco NFT collection to strengthen blockchain legacy
- Announced the readiness of SmartHub Datacenter as the future telecom hub in the region
- Partnered with G42 to create the UAE and Middle East's largest data center provider, Khazna Data Centers, to support the creation of a digital ecosystem
- Entered a new phase of collaboration and strategic partnership with Microsoft to drive innovation and digital transformation
- Open Radio Access Network (RAN) MoU comprising of Middle East operators including e& opened the region's first centralized test lab in collaboration with TIP and Intel
- Partnered with Meta to drive innovation with enhanced Augmented Reality (AR) and Virtual Reality (VR) experiences and conversational commerce in its digital communication projects
- e&, Abu Dhabi Digital Authority (ADDA) and Trend Micro partnered to launch Cyber Eye, an initiative to strengthen the Abu Dhabi Government entities' cybersecurity capabilities

Etisalat UAE, by e&:

- Announced the refreshed brand identity in line with the Group's new positioning earlier this year
- Launched GoChat Messenger, an all-in-one free voice and video calling app
- Launched the UAE's first-of-its-kind Easy Insurance, an innovative insurance platform offering digital services for auto, health and travel insurance
- Partnered with Amazon to offer eero and Echo devices for the very first time in the country and expanded collaboration with Amazon Web Services (AWS) to serve key industries and meet the growing demand for digitalization across different industries
- In collaboration with industry leading vendors, Etisalat UAE launched the first global live multi-vendors VoNR (Voice over New Radio) ecosystem
- Recognized outstanding small and medium businesses (SMBs) and start-ups at the second edition of the SMB awards
- Smiles partnered with Mohammed Bin Rashid Al Maktoum Global Initiative (MBRGI) to support the global "One Billion Meals" campaign during the holy month of Ramadan

e& international:

- Etisalat Egypt announced its brand identity as etisalat by e&, following the celebration of its 15th year anniversary of operations
- Etisalat Egypt and Honeywell signed an MoU to offer new services and products in the field of IoT and smart cities
- Announced discussions with Mobily regarding a potential offer to increase its shareholding in Mobily
- PTCL successfully deployed AirPON, an innovativeFibre-to-the-Homesolution,in its Fiber Access Network

e& life, from e&:

- eWallet rebranded as e& money, the new fintech company as well as the financial super app marketplace
- E-Vision and Abu Dhabi Developmental Holding Company PJSC (ADQ), signed a binding agreement to acquire approximately 57 percent in STARZPLAY ARABIA
- ejunior, owned by E-Vision, celebrated its successful 21-year journey in the UAE

e& enterprise, from e&:

- Partnered with DataRobot to launch an Enterprise AI as a Services (AIaas) for supporting governments' digital transformation journey support
- Partnered with NICE to bring the CXone cloud platform to the UAE
- Collaborated with Oracle, to host business solutions for Transguard Group to lower the total cost of ownership (TCO) by over 40 percent in five years

H1 Overview

e&'s consolidated revenues reached AED

26.3 billion, while consolidated net profit was AED 4.9 billion, a year-over-year increase of 2.5 percent. At constant exchange rates, revenue increased by 3.8 percent. Consolidated EBITDA remained steady in reporting currency at AED 13.4 billion, while increased by 4.1 percent in constant currency, resulting in an EBITDA margin of 51 percent. The number of etisalat by e& subscribers in the UAE reached 13.3 million in H1 2022, representing an increase of 10 percent over the same period last year, while aggregate group subscribers reached 160 million, a 2.5 percent increase. Since e&'s evolution into a global technology and investment conglomerate earlier this year, the company has continued its journey with steady progress in creating innovative solutions using next-generation technologies and pursuing strong local, regional and international mutually beneficial partnerships that create value and benefit our customers, enterprises and communities. Commenting on the H1 2022 results, H.E. Jassem Mohamed Obaid Bu Ataba Alzaabi, Chairman of e&, said: "e&'s performance during the first half of the year demonstrates our unwavering commitment, continued efforts and relentless focus on realizing our vision of driving the digital future to empower societies. Our success is underpinned by our drive to make a positive change in the societies we serve while adding value to our shareholders. Our financial performance reinforces e&'s success story and its strong standing, tackling the challenges and rising to every opportunity to execute our ambitious plans we embarked on earlier this year and set the momentum for the remainder of 2022. We have embraced digitization, with a continuous innovation ethos to charter our course into a more holistic digital transformation for our communities and societies. I would like to thank the UAE's wise leadership for their inspiring vision and continuous support to the ICT sector. I am also grateful to our e& management team for constantly capitalizing on our deep digital expertise to act as enablers of digital transformation for governments, corporates, and consumers, providing complete end-to-end solutions. We remain thankful to our loyal consumers and shareholders for joining us in our journey of transformation and collaborating with us to set new industry benchmarks and reach new heights." Hatem Dowidar, Group CEO of e&, said: "e&'s financial results for the first half of this year are an outcome of our earnest endeavors to drive growth and enhance efficiencies, with a strong commitment to key strategic priorities to enable a better digital future and drive innovation. e& achieved good performance despite global economic challenges characterized by soaring inflation, hike in interest rates and foreign currency devaluation. We will remain resilient and see these times as opportunities to deepen our focus and invest in the long term. As we navigate through the new global economic landscape, we will focus on our goal to create and deploy innovative solutions to positively impact people's lives.

etisalat by e& Completes First 6GHz Trial in MENA

Etisalat UAE, branded as etisalat by e&, has successfully completed its first trial of the 6GHz spectrum, which marks a significant step for the future of 5G. The trial conducted with Huawei Technologies was integral in today's technology evolution as full speed and capabilities of 5G depend on mid-band spectrum that secures performance in the long term, according to the telco. The 6GHz range is a mid-band frequency and sits at a balancing point between coverage and capacity, providing the perfect environment for 5G connectivity. Extending the bandwidth of 5G through the harmonization of 6GHz spectrum will provide more bandwidth and improve network performance. On top of this, the broad, contiguous channels offered by the 6GHz range will reduce the need for network densification and make next-generation connectivity more affordable for all. Khalid Murshed, Chief Technology and Information Officer (CTIO), Etisalat UAE highlighted that 5G allows the industry to support national digital transformation goals by providing reliable, high capacity, low latency, and wide-area connectivity to consumers and industries. "The metaverse is opening untapped opportunities with hyper-personalized experiences powered by AI. Telcos will be the entry point to the metaverse because of connectivity but also because the customer wants access to a digital world. The future is powered by AI and analytics, with metaverse playing a role yet to be defined. This kind of technology disruption will create challenges but simultaneously bring massive prospects to this dynamic industry," he said. Murshed further noted that the trial for 6GHz was influenced by these future market requirements as they foresee a significant growth accelerated by these applications. "As a digital telco, we focus on our core while curating digital experiences

that maximize engagement by building new capabilities across AI and digital to thrive in an increasingly competitive and ever-changing market environment." The focus on 6GHz is also in line with etisalat by e&'s future roadmap as part of the e& group transformation drive to become a global technology conglomerate. 5G is being viewed as an enabler of the future digital society and the foundation for the digital economy. According to GSMA's latest report, 5G will bring an economic contribution of $700 billion to society in 2030. At the end of March 2022, 5G services have been launched in more than 70 countries, with more than 220 5G networks being deployed, and more than 700 million 5G users.

Mobily Posts a 47% Increase in Net Profit in 2Q22

Saudi Arabian mobile network operator (MNO) Etihad Etisalat (Mobily) has published its financial results for the three months ended 30 June 2022, reporting a 4.6% year-on-year increase in revenues to SAR3.899 billion (USD1 billion), up from SAR3.728 billion in 2Q21. The company claims that the positive result was due to the growth of revenues generated by its Business and Wholesale units and 'healthy growth' in its fiber-to-the-home (FTTH) and overall subscription base. Further, EBITDA increased to SAR1.482 billion in 2Q22, up by 10.3% y-o-y, while interest and financial charges grew 17.6% y-o-y to SAR143 million in the period under review, reflecting the increase in interest rates. Net profit, meanwhile, improved by 47.4% y-o-y from SAR244 million to SAR360 million in 2Q22. CAPEX for the first six months of 2022 amounted to SAR539 million versus SAR425 million for the similar period of the previous year.

Omantel Boosts 5G Coverage in Muscat, Al Batinah South and Al Batinah North

Oman Telecommunications Company (Omantel), the Sultanate's incumbent fixed and mobile operator, has announced that it has now covered the populated areas in the governorates of Muscat, Al Batinah South and Al Batinah North with 5G services, reports Times of Oman. 'We have successfully rolled out a large number of new 5G sites in the populated areas of Muscat, Al Batinah North and Al Batinah South governorates. These new sites will serve home internet and mobile internet alike, and users will get an optimum speed even at the edge of the coverage range,' said Aladdin Baitfadhil, Chief Commercial Officer at Omantel, adding: 'We managed to ensure a fast and steady connection everywhere within the coverage range, even for mobile users, through smaller 5G cells that connect to the main tower.' Omantel was allocated 100MHz of spectrum in the 3400MHz-3500MHz frequency band in December 2018, following which a commercial launch of fixed wireless 5G services for residential customers took place in December 2019. Commercial 5G mobile services, supporting maximum download speeds of 1Gbps, were then launched in February 2021. Omantel's 5G service is available without extra charge on both post-paid and pre-paid tariffs, although customers require a 5G supported handset or device and must be within coverage area to use the service.

Omantel Crowned Middle East Best Regional Operator and Best Regional Data Centre Operator

Omantel has emerged winner in two categories at the CC-Global Awards 2022, presented by the Carrier Community, which is one of the most active and prestigious forums in the wholesale industry. The awards were recently presented in Berlin. Omantel won in the Middle East Best Regional Operator and Best Regional Data Centre Operator categories, reiterating its regional wholesale prominence and capabilities that have contributed towards making Oman a strategic point in the global communications domain. Sohail Qadir, Vice President of Wholesale at Omantel, said, ''Omantel has been consistently winning at the CC Global Awards, which is a remarkable achievement. We thank the Carrier Community for recognizing Omantel's efforts to push the boundaries of telecommunications and ICT services in Oman, the MENA region and beyond. Winning these awards proves to us that we are on the right path, as they are an encouragement to each milestone we reach. Omantel's role as the leader and enabler of digital transformation and a facilitator of fast-paced global communication networks will only grow in the time to come. These awards keep fueling our ambitious journey.'' Wida Schmidt, the Co-Founder of the Carrier Community commented "We had a successful awards ceremony with a significantly increased participation this year. This means that the competition was even higher this time and our award judging panel, formed by reputable and neutral industry experts, had a challenging task to decide on the winners. Omantel emerged as the winner in two categories, which demonstrates its retained leadership in the MENA region and reflects its successful journey of growth and innovation. The company was named the Middle East Best Regional Operator for the third year in a row and recognized for changing the wholesale landscape in the region through global connectivity investments and tech services offerings.'' Omantel, beyond its role of being the leading integrated telecom service provider in the Sultanate, was recognized for enabling wholesale services in the Middle East, Asia, Africa and Europe resulting in successfully driving a transformation unseen elsewhere in the region. Through serving 80% of the internet from the global content locally hosted in Oman, Omantel has showcased how it has been attracting and hosting key international content providers and hyperscalers to serve better internet experience to the Sultanate of Oman and the whole region. Omantel has investments in more than 20 subsea cable systems reaching to 120 locations around the world. Omantel has introduced a number of new key global wholesale projects recently including the partnership with SUBCO to facilitate the landing of Oman-Australia Subsea Cable (OAC) in Barka, one of the longest ever direct subsea cables stretching for around 10,000 km from Perth to Muscat, that offers an express route linking Australia and the EMEA (Europe, Middle East and Africa) region and promises a secure, diverse and low-latency connectivity between the two continents. Globally, Omantel's network of submarine fiber spans for over 114,000 km (for operational cables originating from Oman to the world). Being recognized as the Best Regional Data Centre Operator category cements Omantel as the regional leader from the wholesale perspective. The award recognizes the benefits of Omantel's joint venture with Equinix to establish MC1 in Muscat, the first carrier neutral data center in the MENA region, which has

turned the region into the new communication hub. Followed by SN1, the newly announced state-of-the-art data center in Salalah, also in partnership with Equinix. The MC1 data center is where carriers, content providers, and cloud providers can co-locate critical IT infrastructure. It leverages Oman's geographic advantage at the wholesale hub in the region with a solid strategy to enable its customers and partners to deliver their services with the best possible end-user experience. After establishment, SN1 data center will develop to be a key interconnectivity point for traffic flows between Asia, Europe, and Africa. It will contribute to making Salalah the newest wholesale hub in the regional telecom arena. By shortening the length and routes to many highly strategic and important subsea cables in the region, the new SN1 facility will transform the landscape of global traffic flows by creating a much more cost-effective route to connect businesses to the Middle East. The new data center will also offer direct fiber connectivity to MC1. Through its Wholesale Business Unit, Omantel has been serving local and international telecom operators, through providing them with advanced telecom solutions in terms of interconnection, internet access, connectivity, infrastructure, carrier, roaming, and more. Omantel's Wholesale has undergone an extraordinary transformation journey over the last decade, from being a party dependent on other regional wholesale providers for fulfilling its own requirements to becoming a main wholesale provider serving telecom operators and content providers locally, regionally, and globally. Moreover, Omantel introduced the Dynamic Global Wholesale Integration Program that is continuously evolving to cover the future needs of the company and its clients through constant updates and enhancements to remain on par with the global developments and lead the telecom scene in the region and beyond.

Musandam Governor's Office Signs Telecom Agreement with Omantel

The Office of the Governor of Musandam signed an agreement with Oman Telecommunications Company (Omantel) to provide telecommunication and Internet services at the governor's office. The agreement seeks to achieve harmony among communication networks and internet lines, merging all in one component for the sake of sound management and prompt solutions. The agreement was signed by Sayyid Ibrahim Said Al Busaidi, Governor of Musandam, and Talal Said Al Ma'amari, CEO of Omantel. Omantel is enhancing and updating its integrated system in a manner that better serves its partnership with the public and private sectors and realize the goals of digital transformation.

Zain Introduced CEP Students to Its Leading Experience in Kuwaiti Telecom Sector

Zain, the leading digital service provider in Kuwait, hosted engineering and telecom students from Kuwait University' College of Petroleum and Engineering (CEP) at its main headquarters in Shuwaikh. During the visit, Zain introduced the students to its leading experience in the Kuwaiti telecommunications sector. This initiative came as part of Zain's belief in the private sector's key role in supporting the nation's education sector and embracing the talents of local youth. The company is committed to playing an active role in the investment in Kuwait's human capital. By adopting such initiatives, Zain seeks to support students and allow them to apply their skills, achieve their potential, and fully develop their capabilities. The visit came in collaboration with the Institute of Electrical and Electronics Engineers – Kuwait Branch (IEEE Kuwait), where Zain introduced the visiting students to some of the most essential business and technical aspects of its operations, including networks and telecommunications, corporate affairs, and customer care. Zain discussed the impact of new technologies, such as 5G and artificial intelligence (AI), on the advancement of the local telecom sector. The visit also included tours to Zain's datacenter, considered one of Kuwait's leading datacenters, as well as to the Zain Innovation Center (ZINC) and the company's call center (107), where they learned how Zain maintains the best customer service practices to serve Kuwait's biggest family of subscribers. On another front, Zain introduced the students to the various roles of its Corporate Communications and Relations Division, its strategies, and role in enriching the Zain brand. Topics included external and internal relations, media relations and social media, corporate sustainability and social responsibility, as well as innovation and entrepreneurship. Zain is committed to exerting more efforts into offering similar programs that enrich the development of Kuwaiti talents and education in all areas. The company spares no efforts in making its capabilities and resources available as well as reinforce its collaboration with entities and organizations that provide such initiatives and actively develop students.

Zain Awarded World Finance 'Best Corporate Governance Award 2022' in Kuwait for 2nd Consecutive Year

Zain Group, a leading telecom innovator in seven markets across the Middle East and Africa, listed on the Boursa Kuwait, announces it has won the World Finance 'Best Corporate Governance Award 2022' for Kuwait for the second consecutive year. Zain's Investor Relations and Corporate Governance Framework continue to attract high praise and gain market confidence as the functions provide stakeholders including shareholders, industry analysts, and regulatory authorities with accurate, timely, and actionable information in a transparent and accountable manner. As a leading entity listed on the Premier Market, Zain is in regular communication with the country's Capital Markets Authority (CMA), as it fully abides by and seeks to exceed the regulations issued by all financial regulatory bodies in Kuwait including the Ministry of Commerce and Industry, the CMA and Boursa Kuwait. Bader A-Kharafi, Zain Vice-Chairman and Group CEO said, "It is an outstanding achievement to be recognized as possessing the 'Best Corporate Governance' practice in Kuwait for two years in a row, and this milestone justly rewards our Investor Relations and Corporate Governance team's high ethical standards, professionalism and diligence." Al Kharafi added, "As a publicly traded organization, it is necessary for us to disclose certain information, though in Zain's case we proactively seek to go beyond this minimum disclosure requirement. The publication of our annual and sustainability reports, regulatory disclosures, Corporate Governance framework, as well as our operational and financial results reporting, all point to our goal to be as informative, transparent, and supportive as possible to all stakeholders, that require company and financial information from us." Zain's Corporate Governance framework helps the company to mitigate risks and facilitates an effective board oversight over the company's executive management by monitoring the implementation of policies when running daily operations. Corporate Governance promotes strong internal controls to improve integrity of financials and establishes a culture of compliance. This governance structure has helped Zain to win the confidence of the market and attract global investors. In Kuwait, there are 11 principles on which Corporate Governance laws are based. The principles include disclosure to achieve transparency, composition and independence of the board of directors, value creation through appointing qualified members of the board and qualifications and management, performance assessment of the board, promoting ethical standards and enforcing the code of conduct, ensuring accounting integrity, applying sound systems for Internal Audit and Risk management, and focusing on corporate social responsibility. Zain's board plays an important role in ensuring that Zain conducts its business in a fashion that is consistent with the highest standards of governance and ethical behavior and that it contributes positively to society. One of the Group's business priorities is to comply with legal and regulatory business requirements, demonstrated through developing its operations to reflect the latest changes in corporate governance best practices. Zain focuses on the environmental, social and governance (ESG) indicators, and ensures that ESG issues are integrated into business strategy. Zain's business environment depends on better empowerment of decision makers through diversity and inclusion, working with integrity and honesty, and adhering to the company's code of ethical conduct to achieve our targets. The ethical guidelines of Zain's Code of Conduct are extensive and exist to guide and empower the Board of Directors and executive management to make the right choices, as individuals and as a company. Adhering to the Code of Conduct allows Zain to exercise a positive impact on the industry, communities in which it operates, and beyond; and build a company all can be proud of, where corporate responsibility is a key competitive advantage. Zain's Investor Relations and Corporate Governance departments are also working to raise awareness on issues related to the environment, social, and governance matters in response to global trends and best practices. Accordingly, Zain has developed new policies and is working to increase transparency in addition to focusing on social responsibility. Such policies and procedures are flexible, and take into account both short- and long-term challenges and risks. Zain Group has placed sustainable growth at the forefront of its priorities, as the board and executive management believe in building positive relationships between all stakeholders, by strengthening Corporate Governance. World Finance is a print and online magazine providing comprehensive coverage and analysis of the financial industry, international business and the global economy. Since being founded nearly 20 years ago, the publication is read in over 100 countries, with a readership of 120,000 per issue on average. The annual World Finance Awards select and analyze some of the most diverse and succinct governance platforms and recognize leading organizations in this important area.

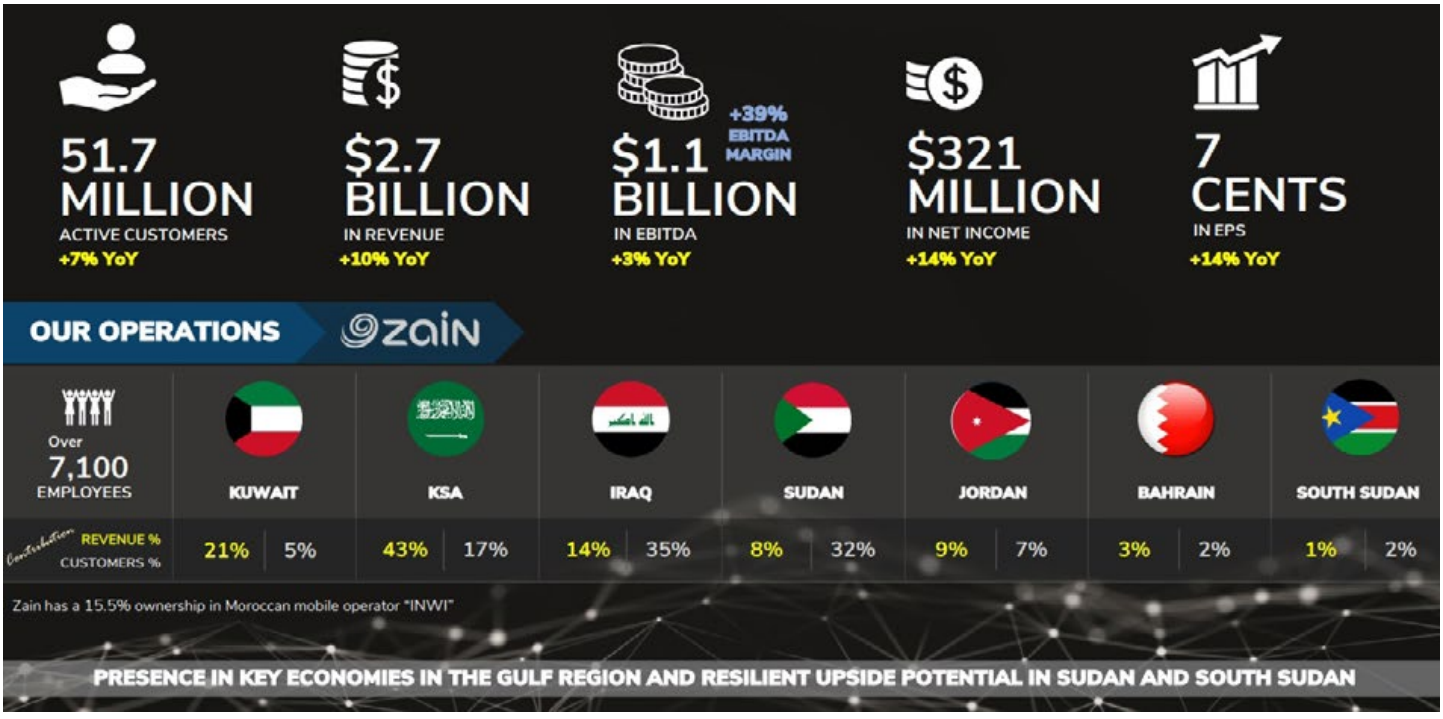
Zain Joins UN Global Compact Initiative for Responsible Business Practices

Zain Group announces that it has joined the United Nations (UN) Global Compact initiative — a voluntary leadership platform for the development, implementation, and disclosure of responsible business practices. With this announcement, Zain is proud to join thousands of other companies globally, and a select few telcos from the Middle East region, in making this commitment to taking responsible business action to create the world we all want. The UN Global Compact is a call to companies everywhere to align their operations and strategies with ten universally accepted principles in the areas of human rights, labor, environment, and anti-corruption, and to take action in support of the UN's Sustainable Development Goals (SDGs). Launched in 2000, the UN Global Compact is the largest corporate sustainability initiative in the world, with more than 15,000 companies and 3,000 non-business signatories based in over 160 countries, and more than 70 local networks. Commenting on Zain becoming a participant of the UN Global Compact, Bader Al-Kharafi, Zain Vice-Chairman and Group CEO said, "Zain is committed to creating the world we all want by embedding the UN Global Compact and its 10 principles as part of the overarching strategy, culture, and day-to-day operations." Al-Kharafi continued, "In our own capacity to establish a 'wonderful world', through its business practices Zain is already addressing climate change; upholding human rights; protecting children in the digital and physical realms; and clamping down on corruption, which are all elements that will be further amplified through our entry into the UN Global Compact and its mission." Through joining the UN Compact, Zain is recommitting to supporting and respecting human rights and reassuring all company stakeholders are protected. This is already reflected in Zain's code of conduct, HR policy and supplier code of conduct policy, ensuring that across Zain's value chain, the business respects its employees and treats them all equally without any form of discrimination. The company is fully committed in playing an active role towards climate change and biodiversity loss, where it recently published its 11th annual Sustainability Report entitled, "A Resilient Journey" disclosing its ESG indicators as well as its annual thought leadership report entitled, "The Climate Crisis - Achieving Net-Zero for a Sustainable Future" that explores various important topics related to working towards a Net-Zero economy. Climate change is a pressing global issue, and Zain is committed to bringing about systemic change by adopting energy efficient solutions and reducing its carbon footprint.

Zain Group Reports a 10% Increase in Revenues in H1 2022

Kuwait-based telecoms group Zain has published its consolidated financial results for the six months ended 30 June 2022, reporting a 10% increase in revenues year-on-year to KWD829 million (USD2.7 billion), while EBITDA increased 3% annually to KWD320 million. The company booked a net profit of KWD98 million in the six months under review, up 14% y-o-y. Over the six months to 30 June 2022, Zain CAPEX investments focused predominantly on 5G rollouts in Kuwait, Saudi Arabia and Bahrain; 4G upgrades and new network sites across its markets; expansion of fibre-to-the-home (FTTH) infrastructure; and spectrum licence fees. During the period under review, Zain Kuwait claims to have become the first telecoms operator globally to launch Vo5G with nationwide coverage; the group also completed the first 4G/5G Open and Cloud Native Radio Access Network (cRAN) live trial in the region. In operational terms, Zain Group reported a consolidated subscription base of 51.7 million at 30 June 2022, an increase of 7.1% y-o-y. In Kuwait subscriptions increased 9% y-o-y to 2.6 million, while the Saudi Arabian unit reported 8.9 million subscriptions (up 21% y-o-y). Zain Sudan's subscription base stood at 16.3 million at 30 June, flat y-o-y. Zain Iraq, meanwhile, saw its subscription base increase 12% y-o-y to serve 18.0 million in H1 2022, while the subscription base in Jordan reached 3.7 million (up 4% y-o-y). Bader Nasser Al-Kharafi, Zain Vice-Chairman and Group CEO, commented: 'The healthy revenue and net income growth across multiple key markets vindicates the strategic investments we have made over recent years in network upgrades and cutting-edge digital platforms. By offering our individual and enterprise customers state-of-the-art technologies and services, we are enhancing our customer and revenue share across our markets. The 5G network of our flagship operation in Kuwait is the driving force of the 9% increase in customers and generation of multiple

streams of profitable government and enterprise revenue, resulting in a 11% increase for all key financial indicators – revenue, EBITDA and net income.'



'Shlonik' Wins 'Best Government Project' Award

Zain, the leading digital service provider in Kuwait, took part in the annual ceremony and exhibition of H.H. Sheikh Salem Al Ali Al Sabah Informatics Award held at Bayan Palace, during which the Shlonik app was recognized for winning the Informatics Award at the twentieth edition back in 2020. The event was held under the patronage of H.H. the Amir Sheikh Nawaf Al Ahmad Al Jaber Al Sabah and attended by H.H. the Crown Prince Sheikh Meshal Al Ahmad Al Jaber Al Sabah. The ceremony was attended by representatives of the three partners behind the app: Zain Kuwait CEO Eaman Al Roudhan, Director General of the Central Agency for Information Technology (CAIT) Haya Al Wadani, CAIT Deputy Director General for Information Technology Dr. Amaar Al Hussaini, and Assistant Undersecretary for Public Health Affairs at the Ministry of Health Dr. Buthaina Al Mudhaf. Zain expressed its pride in this high-level recognition. The company developed the app in 2020 in joint collaboration with the Central Agency for Information Technology (CAIT) and the Ministry of Health (MOH), with support from Kuwaiti volunteers and government entities during the early days of the COVID-19 pandemic to facilitate home quarantines. This prestigious award has had immense patronage from H.H. the late Amir Sheikh Sabah Al Ahmad Al Jaber Al Sabah and continues to receive generous support from its founder H.H. Chief of the Kuwait National Guard Sheikh Salem Al Ali Al Sabah. The fact that 'Shlonik' has received this award reflects the fruitful unified efforts of Kuwait's public and private sectors. 'Shlonik' was developed by Zain's team in joint collaboration with the Central Agency for Information Technology (CAIT) and under direct supervision from the Ministry of Health. The app's development and launch came in a relatively short period of time that coincided with the beginning of the country's evacuation plan to return thousands of Kuwaiti citizens back home at the beginning of the pandemic. During April 2020, specifically during the beginning of the evacuation plan's first phase, Zain developed 'Shlonik' (which translates to 'how are you' in the Kuwaiti dialect) app for smartphones to support the enormous efforts exerted by the authorities to tackle the pandemic. The app was designed with world-class standards in mind, with direct

and continuous supervision from the Ministry of Health's team. 'Shlonik' utilized the latest tech solutions to monitor the compliance of citizens who returned to Kuwait as part of the government's evacuation plan in home quarantine instructions. The app was also an essential tool to pair with the smart wrist bracelet that was distributed at Kuwait International Airport to anyone who underwent home quarantine. 'Shlonik' can be downloaded from Apple's App Store, Google's Play Store, and Huawei's App Gallery, and is available in five different languages: Arabic, English, Urdu, Tagalog, and Bengali. Users can sign up via their phone and civil ID numbers. The app features an interactive COVID-19 assessment agent to help each user know what to do next. The Qualification Committee and Judging Panel of H.H. Sheikh Salem Al Ali Al Sabah Informatics Award held various virtual sessions to study a total of 308 projects from Kuwait and the Arab World. The sessions has resulted in the nomination of 25 projects to the judging panel, which consisted of many specialists and experts from 8 different Arab countries to select the winners. 9 tech projects won the award for their creativity and innovation.

Analysys Mason's Latest Forecast Predicts that Small and Medium-Sized Businesses' (Smbs') IT Spending will Increase to USD1.4 trillion in 2022

In the latest release of its SMB Technology Forecaster, Analysys Mason predicts that IT spending by SMBs will grow at a compound annual growth rate (CAGR) of 7.5% between 2022 and 2027. Cloud-based services will drive this growth because they support a distributed workforce, improve efficiency and provide business resiliency. SMB IT spending on cloud-based categories is expected to grow from USD600 billion in 2022 to USD1.0 trillion in 2027. The SMB Technology Forecaster helps IT vendors and operators to pinpoint areas for revenue growth. It provides granular insights into SMB IT spending, split by technology category, country, business size, industry vertical and sales channel.

The key findings of the latest forecast include the following.

- Spending will increase in 2022. SMB IT spending is expected to grow by 5.9% year-on-year in 2022. This growth has been limited by economic and political uncertainty, despite the optimistic view expressed by SMBs coming out of the pandemic.
- Spending growth will increase over the next 5 years. IT spending growth will increase gradually over the next 5 years and will reach 8% year-on-year by 2027.
- Three categories account for almost half of all spending. Managed services, infrastructure and cyber security are key priorities for SMBs in 2022. Spending on these categories will account for 45% of SMBs' total spending on IT. SMBs are shifting their focus towards categories that can help them to establish a resilient IT environment in order to enable business continuity and avoid future disruptions.
- Hybrid working continues to influence IT spending. Hybrid working environments will continue to drive spending on collaboration and business applications, as seen during the pandemic. SMBs will shift from using freemium versions to paid offerings within these category areas.

Commenting on the forecast, Bob Takacs, Research Director and SMB IT practice leader at Analysys Mason, said, "Our latest forecast reveals the shift in SMBs' behavior and priorities since the pandemic. We see increased investments in categories driving resiliency and efficiency. This includes categories such as managed services, infrastructure and cyber security." He adds, "This is an important release because we accounted for the impact of three critical drivers including SMB's changing behaviors post-pandemic, macroeconomic headwinds and the global political unrest. Given these impacts to the ecosystem, this release will be an essential tool for business leaders to help them to drive and protect their SMB revenue." The Analysys Mason SMB Technology Forecaster is an essential tool that helps clients to forecast, inform and validate their marketing and channel strategies with precision and confidence. It is underpinned by extensive primary research, granular demand insights and macroeconomic data and is stress-tested to ensure accuracy and predictability. The SMB Technology Forecaster therefore enables our clients to answer business-critical questions to protect and grow their SMB revenue. The SMB Technology Forecaster has spending forecasts for over 130 IT categories, 19 industry verticals, 13 business size segments and 5 channels. It therefore allows clients to support their channel partners with evidence-based data on their market opportunity and to execute winning go-to-market strategies.

Analysys Mason Recognized as One of the World's Best Management Consulting Firms

An ongoing global pandemic, coupled with supply chain issues and economic uncertainty, has left many companies scrambling around the globe to adapt to these changes and to a new environment. Despite these challenges, the role of management consultants—those responsible for guiding organizations through disruption—is more important than ever. To help business leaders choose from the wide range of consultancies, Forbes partnered with market research company Statista to launch our inaugural ranking of the World's Best Management Consulting Firms. Statista has established several worldwide top lists in the field of management consultancies, and has conducted such analyses across the U.S., Germany, France, the U.K., Switzerland and Japan. To determine this list, Statista looked at the results of these country-wide top lists and created a top list of the World's Best Management Consulting Firms. All six top lists are based on a similar methodology and take into account numerous recommendations from consultants and clients of consulting firms. The ranking is divided into 13 sectors—from aerospace and defense to financial institutions—and 14 functional areas—including strategy, sustainability and digital transformation. The 230 firms that received the most recommendations are ranked according to star ratings: five stars for "very frequently recommended," four stars for "frequently recommended" and three stars for "recommended."

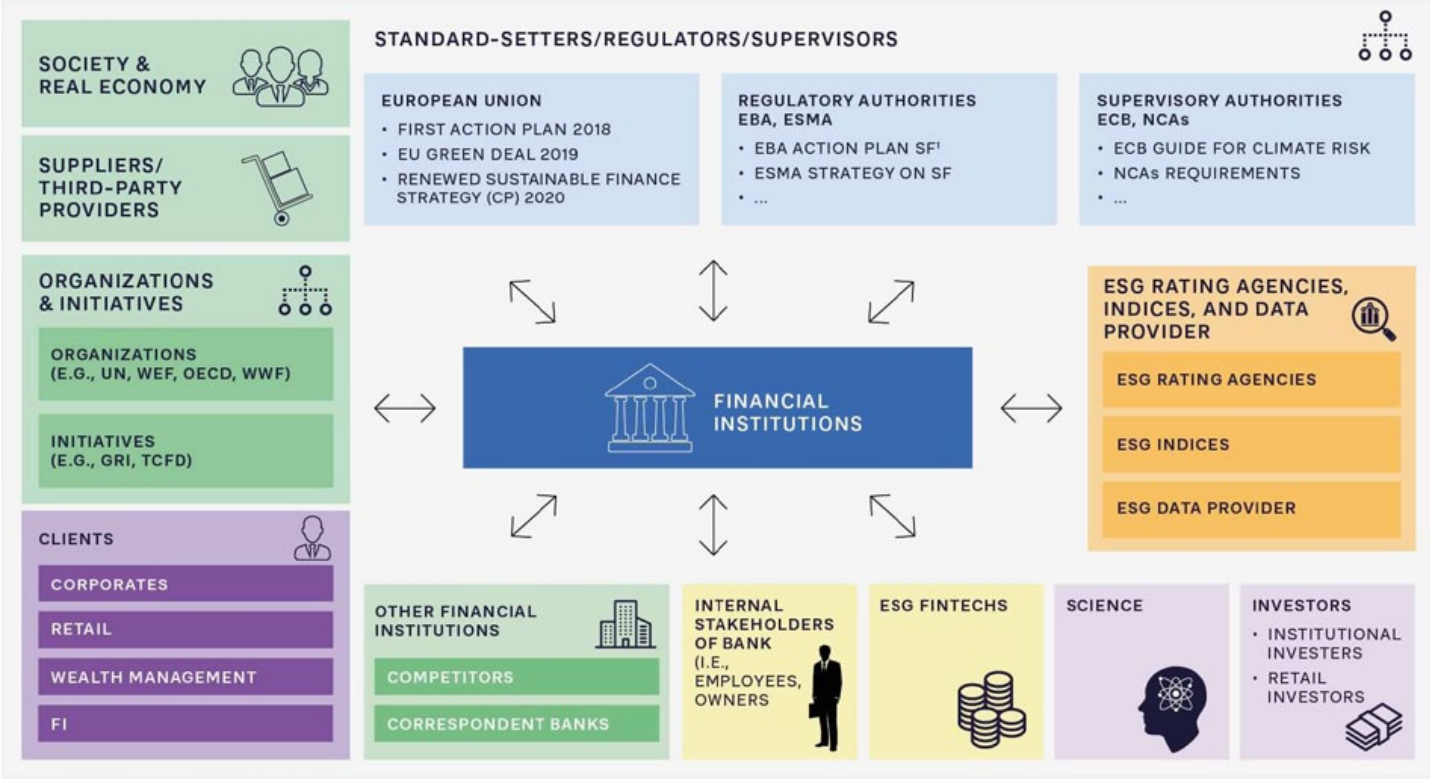
Arthur D Little

Arthur D. Little New Report 'Actively Shaping the Future' Highlights

Sustainability has gained significant traction in financial services over the last few years, moving it center stage, as it lies driven by a range of stakeholders including governments and regulators, investors, and clients themselves. Environmental, social and governance (ESG) are central factors in measuring the sustainability and ethical impact of a company. Today, over 90 percent of global emissions are now covered by Net Zero commitments. In the GCC alone, the financial sector is the largest contributor to the list, indicating that insurance companies have potential to achieve high levels of ESG performance. Overall, GCC companies still have room to grow to meet top global performers with more mature ESG activity. Across the GCC region, adoption of ESG requirements is largely optional, but the development of requirements remains ongoing. High performers on ESG come from a variety of countries and sectors, proving that any company can achieve excellence in ESG, including Telecom Logistics Industrials (20%), Real Estate (10%), and Financials (30%). Out of major insurers in the region, only half are disclosing ESG information, yet regional insurers are developing ESG practices and increasing maturity in ESG reporting, with key best practices emerging. Other major regional public-private organizations are developing frameworks for involvement in ESG finance. Majid Al Futtaim, a leading retail conglomerate in the MENA region with 40+ shopping malls and other developments, is implementing a Green Finance Framework to support its ESG activity. Saudi Arabia's Public Investment Fund (PIF), a $430bn sovereign wealth fund that has been actively involved in the transformation of KSA, partnered with BlackRock on ESG finance. Next, HSBC and Saudi National Bank have created a Sustainable Finance Framework making Saudi National Bank (SNB) the largest banking group in the Kingdom, creating the first sustainable finance framework. The Red Sea Development Company was recognized as a global ESG leader in the Real Estate sector as sustainability has been a core guiding principle since the inception of the regenerative tourism project. The Arab Federation of Exchanges currently references three ESG rating systems which cover companies in the region – Refinitiv ESG Score being mostly recommended as it is widely used and directly measures company ESG performance (vs. risk) offering a 97% share of MENA sustainability leaders score out of 100 points. Refinitiv rates ESG performance, commitment, and effectiveness across 10 main themes while Accounting for industry and company size biases, examples include Aramco (44), Zain (68), and Emirates NBD (35). Another main ESG rating systems used in the region is S&P, one of the world's biggest rating agencies which recently expanded into the

ESG rating segment by combining the ESG profile of a company with the company's readiness to cope with ESG topics; whereas MSCI has developed an ESG index that measures how well a company is prepared for ESG risks.

Co-author Andreas Buelow, Partner in Arthur D. Little's Bahrain office and a member of the Financial Services Practice, said "Key ESG indicators in the GCC are increasingly being linked to global initiatives such as the United Nations Sustainable Development Goals and Global Reporting Initiative standards. Seeing the financial sector in the region increase economic, social and governance reporting is a testament to how growth may increase reputation, and value."



High-Speed AT&T Fiber Internet Coming to 750 Mcdonald's USA Restaurants

AT&T and McDonald's USA are expanding their relationship to bring ultra-fast AT&T Business Fiber to more than 750 McDonald's restaurants across the U.S. The symmetrical high-speed connectivity of the AT&T fiber network will provide these restaurants with the ability to elevate the customer experience today while opening the door for emerging technologies in the coming years. As one of the world's largest restaurant companies,

McDonald's has a deep history in embracing new technologies to deliver superior customer experiences. The last 24 months have triggered a revolution in consumer habits and expectations for restaurants and food service. As the industry evolves, McDonald's plans to use the enhanced connectivity to help uncover the potential of continued advancements in technologies like the Internet of Things and edge computing. Reliable connectivity to the McDonald's Global Mobile App enables speedy delivery of services like contactless Mobile Order & Pay, which has never been more important. Expanding fiber connectivity to more restaurants will provide the infrastructure necessary to support and deploy technologies like this more effectively. For many customers, a visit to their local McDonald's means more than enjoying a great meal. Many bring their mobile devices and connect via Wi-Fi to catch up on the latest hit TV show, do their homework or connect with family on a video chat. The speed and reliability of AT&T Business Fiber will enhance these experiences for more restaurant guests. AT&T Business Fiber helps businesses sell more goods, reach more audiences, work faster and smarter. Services provided over fiber

can transmit more information faster than cable for conferencing, file transfers, and cloud applications with equivalent download and upload speeds. "In 5 years, the restaurant experience could be very different than what it is today. High-speed internet is a critical engine for growth and expansion, creativity and innovation, and a reimagined consumer experience in the industry. We're thrilled to work together with McDonald's to help shape the future of restaurants." – Michael Colaneri, Vice President, Retail Enterprise Solutions. "Our goal is to provide our customers the best experience possible, and we are excited to offer high speed internet on a broader scale. Every day, our customers rely on McDonald's free Wi-Fi to work, study, connect with loved ones or simply relax. They're able to access the internet on laptops or mobile devices at more than 11,500 participating restaurants with Wi-Fi, always free of charge. Fiber-optics are essential to delivering a seamless experience. This agreement with AT&T helps to ensure our customers can access the internet effortlessly and quickly." – Whitney McGinnis, CIO and Vice President, McDonald's USA. "Now more than ever, our McDonald's restaurants have become the hub for family, friends, school, and work. With this expansion, AT&T is focused on providing our customers with a fast, reliable connection and quality internet experience. AT&T's proven reliability helps my organization stay connected to our customers, vendors, and keep our essential business applications running smoothly."

AT&T Contributes US$6 Million for Digital Literacy Initiatives

As part of $6 million in contributions, AT&T is bringing bilingual, in-person digital literacy workshops to more than 400 libraries and community centers across the country. These contributions are part of our $2 billion commitment from 2021 to 2023 to help bridge the digital divide. AT&T's digital literacy initiatives aim to help more than 65,000 people learn to use computers and mobile devices, navigate the internet and commonly used apps, and participate safely and responsibly in today's increasingly connected world. These are crucial skills for people who are new to using the internet and computers. The workshops will utilize online digital literacy courses available through AT&T ScreenReady® and PLA Digital Learn. Created in collaboration with the Public Library Association (PLA), the courses teach skills ranging from technology basics to avoiding scams. The Public Library Association selected 160 libraries that will receive contributions to host digital literacy workshops. Two national digital equity nonprofit organizations, Digitunity and Connected Nation, will work with their network members to host workshops at community centers across the country. According to the FCC, more than 30% of the U.S. population does not have fixed broadband service even though it's available in their area. Even with access to affordable service, some are still not taking advantage of connectivity because they lack the tools and resources to navigate the web safely and responsibly. Strong digital literacy skills are crucial for overcoming the barriers millions of individuals and families face when first participating in our digital-first world, including factors like privacy and online safety. Digital literacy workshops can help people learn how to use computers, mobile devices, and internet resources, along with commonly used apps essential to managing personal finances, applying for jobs, obtaining an education, accessing telehealth services, and other everyday activities. Public libraries play a vital role in providing access to the internet, devices, and digital content, and knowledgeable staff to all — particularly to people of color and youth in low-income households. In 2019, nearly 54 million Americans accessed the internet in public places, and public libraries alone hosted nearly 224 million public internet use sessions. During the pandemic, libraries expanded this reach with extended Wi-Fi access and hotspot and device lending. With support from AT&T, members of Digitunity's Digital Opportunity Network will receive funding to conduct digital literacy workshops at their respective locations over a six-month period. Other nonprofit organizations interested in offering these courses can apply to join the Network on Digitunity's website. Connected Nation will support virtual and in-person workshops for military families at its Fort Campbell Training Facility and in partnership with local community organizations in counties and regions across the U.S. Connected Nation has provided these areas – also known as Connected Communities – with technology planning services through its Connected Program, which recognized digital literacy training as a need. "It will take a collective response to narrow the digital divide," said Charlene Lake, chief sustainability officer, senior vice president, AT&T corporate responsibility, ESG. "That's why AT&T is collaborating with libraries and community centers to bring digital literacy tools and resources to people who are unconnected or newly connected and unable to carry out many of the essential tasks our increasingly digital world requires." "A 2020 PLA survey found that about 88% of public libraries provide some form of digital literacy support, but only 42% offer formal classes. Staffing and funding were the top barriers to providing technology training," said PLA President Maria McCauley. "AT&T's contribution to PLA will boost access to digital literacy skills for the most vulnerable in our communities."

AT&T Contributes US$1 million to New Dallas Innovation Alliance Program

As part of AT&T's US$2 billion nationwide commitment to help bridge the digital divide, AT&T is supporting a digital equity initiative led by the Dallas Innovation Alliance (DIA). DIA is a coalition of stakeholders from the City of Dallas, corporations, civic and other organizations, academia and private individuals who are invested in Dallas' continued evolution as a forward thinking, innovative, 'smart' global city. This contribution will enable DIA to target 10,000 community members with DIA's new Digital Ambassador program, "Connected Dallas", a 2-year campaign to promote digital inclusion and internet access in the Dallas community. "The pandemic has heightened the challenges faced by students, workers and families nationwide who currently lack the connectivity and digital education needed to harness the power of technology in their daily lives," said Mylayna Albright, AVP, Corporate Social Responsibility at AT&T. "Under-resourced neighborhoods have been hit particularly hard. AT&T is proud to continue our collaboration with DIA and support their new Digital Ambassador program to support more than 10,000 members of our community with digital inclusion education, training and connectivity." "Dallas cannot fulfill its potential as a city of innovation if we have communities left out of the technology revolution," said Jennifer Sanders, Co-Founder and Executive Director, DIA. "Our Digital Ambassador program is a direct response to the needs of our communities and will help us provide support on-the-ground and via phone, text and web, for more than 10,000 members who are at risk of falling behind in an increasingly digital world." "As we build for our future in Dallas, it is important for us to work together to bridge the digital divide in our historically underserved and overlooked communities," Mayor Eric Johnson said. "The Digital Ambassador program provides a significant boost to our efforts. Through this program, we can help support our city's families by giving them access to the educational opportunities, training, and other support they need to succeed in the 21st century economy." AT&T is making a $2B commitment from 2021-2023 to help bridge the digital divide through affordable broadband offers for both consumers and education institutions, as well as high-quality educational resources and community investment through AT&T Connected Learning, a program to connect students to skills, resources, and opportunities for success in school and in life. AT&T is committed to connecting more Americans to reliable, high-speed broadband internet in several ways, including expanding and upgrading our network and participating in the federal Affordable Connectivity Program (ACP). The ACP provides eligible households with a benefit of up to $30 a month (up to $75 on qualifying Tribal lands) to reduce the cost of broadband service and can be applied to all our AT&T Fiber speed tiers. After you confirm your ACP eligibility, call us at 866-986-0963 to discuss your options and order service. Be sure to have your National Verifier application ID handy when you call.

Batelco Net Profit Rises 12% in Q2

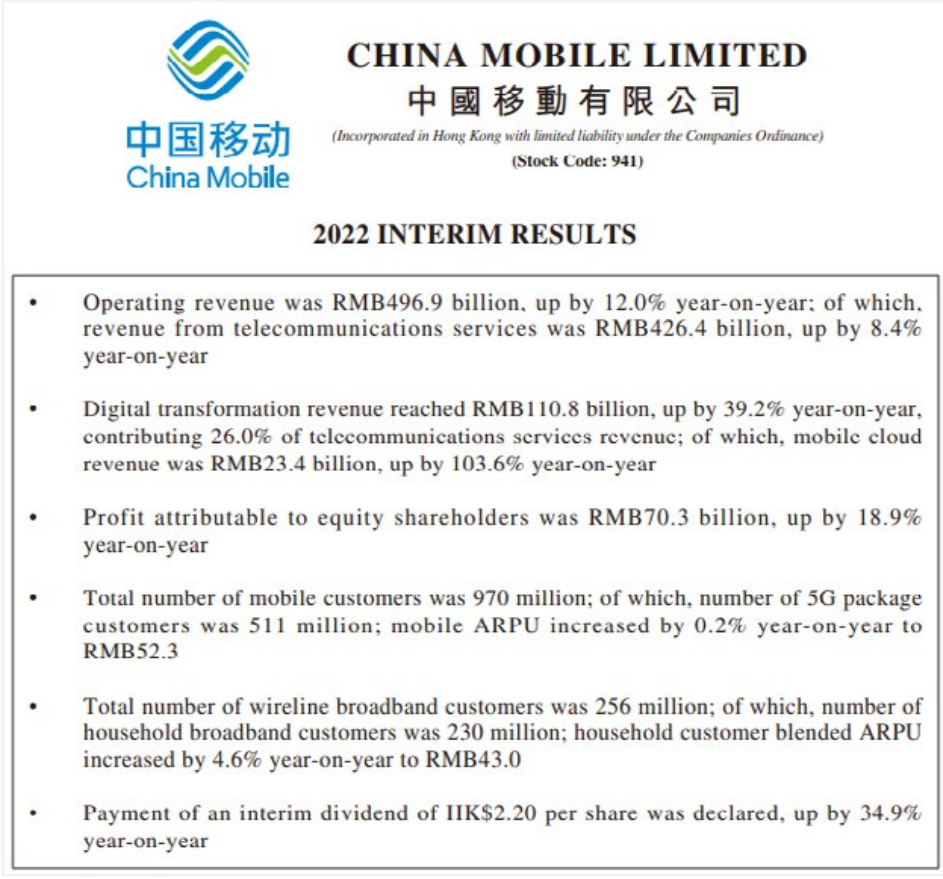
Bahraini telecoms group Batelco has announced its financial results for the three months ended 30 June 2022, reporting 12% growth in net profit to BHD20 million (USD54.6 million) from BHD17.8 million a year earlier, mainly driven by revenues from international operations. Revenues for the period under review rose marginally to BHD99.2 million, compared with BHD98.4 million in 2Q21, while operating profit increased by 4% to BHD24.7 million and EBITDA was up 3% year-on-year at BHD42.9 million. For the first six months of 2022, the group announced net profit increased by 1% y-o-y to BHD37.9 million, while revenues were largely unchanged at BHD197.7 million compared with BHD198.2 million twelve months earlier. Operating profit decreased by 5% to BHD46.8 million in 1H22 and EBITDA was 2% lower at BHD83.5 million, with the group maintaining a 'healthy' EBITDA margin of 42%. The group's international operations contributed 53% of revenues (unchanged y-o-y) and 53% of EBITDA (1H21: 52%) in 1H22. At 30 June 2022 the group's total subscription base stood at around 4.0 million, compared with 3.8 million twelve months earlier. This figure excludes Sabafon – Batelco's associate company in Yemen – and Saudi Arabia's Etihad Atheeb Telecom.

China Mobile Bullish on 5G User Growth

China Mobile predicted continued gains in 5G network customer numbers over the second half, after doubling the number in H1 alongside booking double-digit profit and revenue growth. The operator ended June with 263 million 5G network customers and expects to add another 130 million in the second half, when China Mobile forecast stable ARPU growth after the H1 figure was flat at CNY52.30 ($9.71). Chairman Yang Jie explained in a statement that despite headwinds posed by rising cases of Covid-19 (coronavirus) and other external complexities, China Mobile stepped up efforts to take advantage of rapid growth in the digital economy. Digital transformation revenue, covering enterprise, smart home and new businesses, increased 39.2 per cent to CYNY110.8 billion and accounted for 26 per cent of telecoms service revenue. Mobile cloud sales rose 103.6 per cent to CNY23.4 billion, with more than 3,500 cloud services contracts in the bag by end-June. Total mobile subscribers increased 2.6 per cent to 970 million, with 5G package customers doubling to 511 million. Capex was 7 per cent higher at CNY92 billion, with CNY185.2 billion earmarked for the full year (unchanged from 2021). Of its 1 million 5G base stations, 300,000 were 700MHz sites. Net profit increased 18.9 per cent to CNY3.3 billion, with operating revenue growing 12 per cent. Mobile service revenue was flat at CNY256.1 billion and product sales grew 39.8 per cent to CNY426.4 billion.

China Mobile Books First Half Revenues of US$74bn

Chinese full-service provider China Mobile has published its financial results for the first half of 2022, reporting a 12.0% year-on-year increase in operating revenue, which grew to CNY496.9 billion (USD73.7 billion). Telecommunications service revenue made up CNY426.4 billion of that figure, up from CNY393.2 billion in H1 2021. EBITDA, meanwhile, improved by 7.4% to CNY173.9 billion and net profit attributable to shareholders grew by 18.9% to CNY70.3 billion. Commenting on the performance, China Mobile attributed the uptick in turnover to subscription growth across its four operating divisions: 'Customer', 'Home', 'Business' and 'New'. In the Customer segment (consisting primarily of the operator's retail mobile business) Mobile recorded revenue growth of just 0.2% but recorded nearly 13 million net subscription additions y-o-y, with 970 million accounts at the end of June 2022, including 511 million 5G package subscriptions. The rapid uptake of 5G services served to counteract downward pricing pressure and led to a small improvement in ARPU to CNY52.3 (up 0.2% y-o-y). Its Home division (domestic fixed broadband and related services) saw sustained revenue growth, booking an 18.7% y-o-y increase, to CNY59.4 billion in H1 2022. Mobile recorded 12.41 million net fixed broadband subscription additions – bringing its total to more than 230 million – with gigabit broadband lines accounting for more than 88% of new subscriptions.



中国移动
China Mobile

CHINA MOBILE LIMITED
中國移動有限公司
(Incorporated in Hong Kong with limited liability under the Companies Ordinance)
(Stock Code: 941)

2022 INTERIM RESULTS

- Operating revenue was RMB496.9 billion, up by 12.0% year-on-year; of which, revenue from telecommunications services was RMB426.4 billion, up by 8.4% year-on-year
- Digital transformation revenue reached RMB110.8 billion, up by 39.2% year-on-year, contributing 26.0% of telecommunications services revenue; of which, mobile cloud revenue was RMB23.4 billion, up by 103.6% year-on-year
- Profit attributable to equity shareholders was RMB70.3 billion, up by 18.9% year-on-year
- Total number of mobile customers was 970 million; of which, number of 5G package customers was 511 million; mobile ARPU increased by 0.2% year-on-year to RMB52.3
- Total number of wireline broadband customers was 256 million; of which, number of household broadband customers was 230 million; household customer blended ARPU increased by 4.6% year-on-year to RMB43.0
- Payment of an interim dividend of HK$2.20 per share was declared, up by 34.9% year-on-year

H1 turnover from the Business sector (cloud, data, ICT and IoT service) grew by 24.6% y-o-y to CNY91.1 billion. Notably, the division includes the operator's 5G business services and Mobile highlighted that by the end of June 2022 it had launched 300 5G showcases and signed a cumulative total of more than 11,000 agreements for commercial 5G projects across multiple sectors. The company also added that it had connected more than 195 million vehicles to its Internet of vehicles (IoV) services.

Cisco Equips Service Provider Partners with New Managed Services Offering for Webex

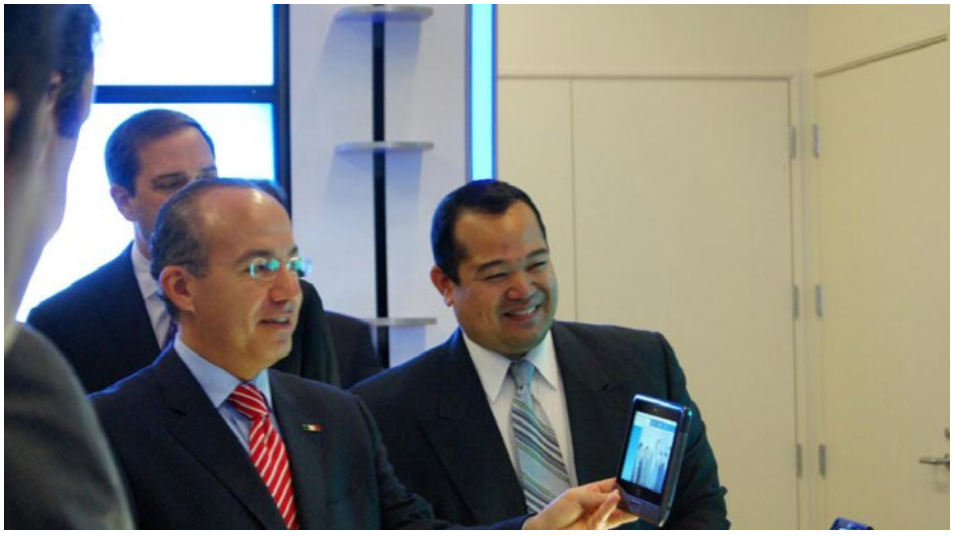
Cisco has launched a new Webex Wholesale Route-to-Market (RTM) for Service Provider partners to address the evolving needs of SMBs. The new sales model includes a single commercial agreement with each partner and a self-service platform for Service Providers to deliver managed services for Webex, as well as the agility, scalability and flexibility to create their own co-branded offers. The Wholesale partner program features consumption-based billing with fixed, predictable per-user/per-month package pricing and equips Service Providers with several invoicing options. The partner onboarding experience includes dedicated Cisco experts, paired with comprehensive online training and a robust set of migration and marketing toolkits to drive market demand and serve SMB customers. "When Service Providers more fully own the customer journey, it increases control of the solution design, provisioning, billing, and support. This translates into improved customer experiences and greater market velocity. This new wholesale model will do just that for Cisco and its partners," said Elka Popova, VP of Connected Work Research, ICT, Frost & Sullivan. "This approach also enables providers to offer SMBs a more complete solution by integrating telco services, such as connectivity, security and mobility, with Cisco's Webex cloud collaboration services suite and Cisco devices." This new wholesale solution makes it easy for Service Providers to leverage their brand with a co-branded offer, build on their market position, and innovate with their own services. APIs and Partner Portal features deliver a simple management experience. And by using a monthly consumption model, they can deliver low friction transactions ideally suited for SMBs. Additionally, Cisco's Success Planning process includes a fully managed onboarding process for Service Provider partners, from pre-work through to production. A parallel go-to-market process accelerates customer acquisition and migration activities with marketing content, sales enablement, adoption assets, support training and launch campaigns. Nexgen Australia, an Australia-based wholly owned subsidiary of Spirit Technology Solutions ASX ST1, is among the first Service Provider partners to sign-up for the Wholesale for Webex. Cisco is also in active trials of Wholesale for Webex with several Tier 1 global service providers. "We wanted to bring our customers the benefits of advanced enterprise collaboration tools without the IT complexity and cost that it usually means. When searching for a cloud-based UCaaS solution, Webex was the obvious choice," said James Harb, Director, Nexgen. "We are an all-digital shop running high-velocity, high-volume transactions. Offering Webex through Cisco's new Wholesale route-to-market means we can continue to lead the way helping Australian businesses achieve more through the latest technology." "By tapping into the brand power of respected Service Providers and combining it with our inclusive Webex technology, rapid innovation, and complete collaboration portfolio, we are creating winning partnerships that address the communication needs of small and medium-sized businesses and help them thrive in a hybrid work world," said Jeetu Patel, Cisco EVP and GM, Security & Collaboration. Initial managed services packages for Webex that are available through the Wholesale RTM include:

Webex Calling: Enterprise-grade calling and advanced collaboration with features for 1:1 and group messaging, file-sharing, and secure basic video conferencing for up to 100 users, for a complete PBX replacement, including multi-device support, visual voicemail, intelligent call routing and more.
Common Area Calling: Calling built for shared use and common area locations and phones.
Webex Meetings: A premium meeting and messaging experience with meetings allowing up to 1000 users. Also includes AI-driven intelligence with Webex Assistant, Slido, remote desktop control, moderator controls and more.
Webex Suite: Encompasses all the above with premium calling, messaging and meetings, plus advanced features that are engaging and inclusive. Managed services for Webex is the first offer available through the Cisco Wholesale partner program. More Cisco devices and other Cisco cloud services for the SMB market will be launched this year.

Cisco Appoints Abdelilah Nejjari as New Managing Director for the Gulf Region

Cisco announced the appointment of Abdelilah Nejjari as the new Managing Director for the Gulf region. Based in Dubai, he will oversee all the company's operations across the UAE, Qatar, Kuwait, Oman, Bahrain, Yemen, Pakistan, and Afghanistan. Abdelilah will be responsible for driving Cisco's business growth and strategy, focusing on accelerating digital transformation for customers across the Gulf region, and working closely with Cisco's partner ecosystem. Abdelilah brings over two decades of diverse experience in ICT and executive leadership to the role, including more than fifteen years with Cisco. Most recently, he held the position of Cisco's Partner Lead and Chief Operating Officer for Middle East and Africa, overseeing planning and executing Cisco's operational policies, go-to-market strategies, and priorities in the region. He was also responsible for strengthening and nurturing Cisco's relationship with its growing partner ecosystem. Reem Asaad, Vice-President of Cisco Middle East and Africa said: "Cisco is deeply rooted in the Gulf countries and our commitment to support the region's digital transformation has never been stronger. I am confident that Abdelilah's expertise coupled with his leadership abilities will tremendously contribute to bolstering innovation in the region and bringing great value to our teams, customers, and partners." In his new role, Abdelilah will support Cisco's customers in their digital journeys, focusing on business agility, unified IT, hybrid work and pivoting to cloud software and services, all underpinned with seamless customer experience and end-to-end cybersecurity. Commenting on his appointment, Abdelilah said: "I am honored to be trusted with the opportunity to lead Cisco in the fast-growing Gulf region where governments are taking leading steps to drive the development of knowledge-based economies. I look forward to extending Cisco's momentum across the region and supporting our customers and partners to seize the full potential of technology and accelerate their digital transformation."

Cisco and Celcom Enhances Mobile Connectivity Experience for Malaysians



Cisco and Celcom Axiata Berhad (Celcom) has announced that their converged Software Defined Network (SDN) transport infrastructure deployed in 2019, have leveraged artificial intelligence and machine learning to significantly improve their service provisioning time. This deployment has enabled Celcom to enhance their go to market agility and create a future ready network for business of all sizes as well as consumers. During the pandemic and Movement Control Order in 2020, Celcom's adoption of CISCO's SDN transport infrastructure successfully used automated IP parameter verifications to reduced human errors which also mitigates the risks of network service disruptions as well as increased faster time to market capabilities for Celcom products and services. The SDN transport network can simultaneously enable fixed and mobile connectivity services for consumers and businesses of all sizes coupling real-time immersive experiences, including IoT connectivity. Converged SDN transport network simplifies the network and improves scalability while maintaining a consistent and superior customer experience. Built with leading edge end-to-

end Segment Routing enabled IP network, one of the very first deployments in the country, Cisco provides a unified, policy-aware network architecture with seamless integration between the transport and the data center domains. Segment Routing also provides the network with the most cost-effective, end-to-end network slicing and low latency capabilities, which also future proofs Celcom's network. With a central SDN Controller as Network Orchestrator for IP and Optical multiple domains, enabling automated operations, Celcom is well-positioned to optimize operational investments with this network simplification, collapsing redundant layers, removing legacy technologies and overlapping functionalities, resulting into Capex efficiencies. "We at Celcom continue to strive to be the most reliable and most trusted network service provider for all Malaysians, with the widest coverage and consistent performance. With over 14 million users on our network and the rapid growth in data traffic, we are always innovating our services with the latest technology. Our continuous collaboration with Cisco is another innovative milestone that enables us to deliver enhanced digital and network services to our customers," said Afizulazha Abdullah, Chief Operations Officer (Technology) of Celcom Axiata Berhad. "Together with Celcom, we have delivered a 5G-ready transport network with a cross-domain orchestrator for IP and Optical layer that is designed to exceed all consumer and business customer needs," said Sanjay Kaul, President, Asia-Pacific and Japan, Cisco Service Provider Business. "Our focus is to ensure that Celcom has a strong foundation from which to grow revenues, reduce costs and mitigate risk."

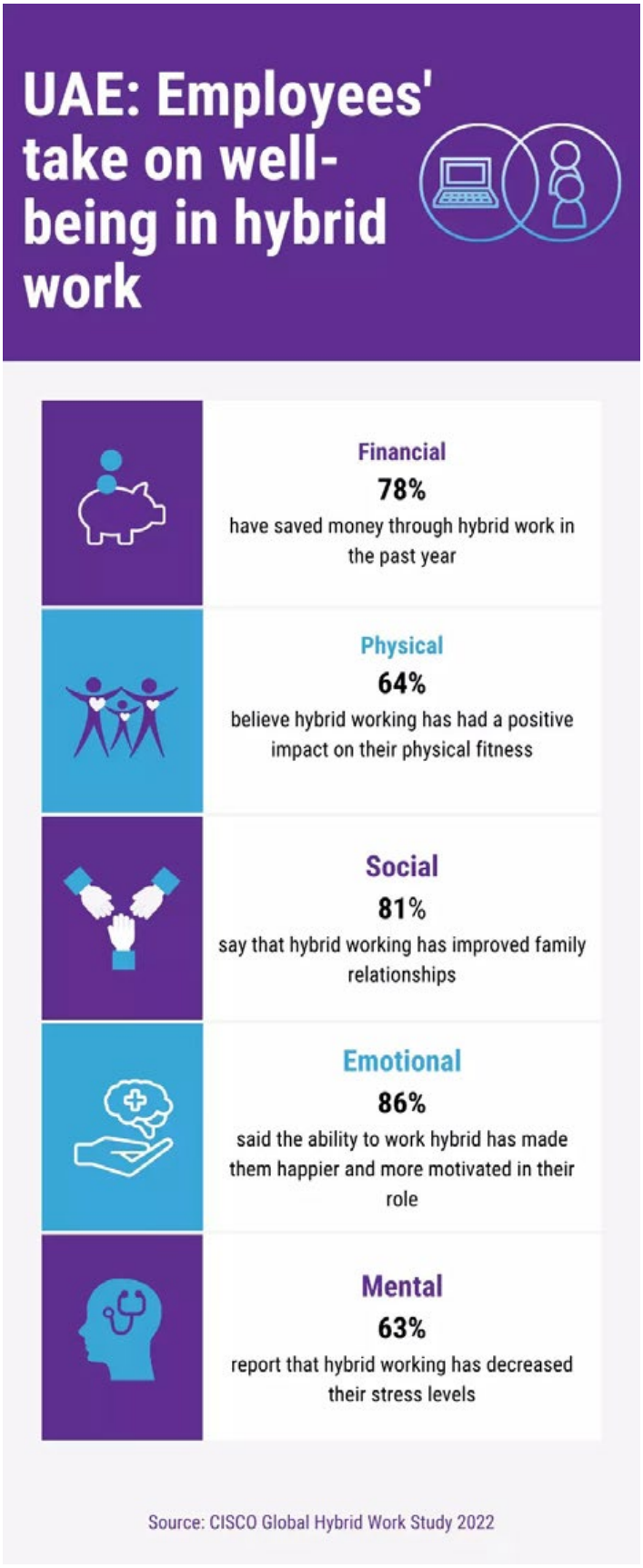
Cisco Reveals Top Cybersecurity Threats Trends in Q2 2022:

Cisco Talos, one of the world's largest private threat intelligence teams released its latest quarterly report that examines incident response trends and global cyber threats. According to the report, during April, May and June 2022, commodity malware outpaced ransomware for the first time in more than a year, comprising 20 percent of the threats observed, followed by ransomware, phishing, business email compromise (BEC) and advanced persistent threats. This quarter mainly saw an increase in commodity malware threats, widely available for purchase or download. This type of malware is typically not customized and is used by a variety of actors to deliver additional threats in various stages of their operation and/or to deliver additional threats. Cisco Talos also observed ongoing Qakbot activity, which leverages thread hijacking, allowing threat actors to use compromised email accounts to insert malicious replies into the middle of existing email conversations. Compared to previous years, ransomware made up a smaller portion, comprising 15 percent of all threats, compared with 25 percent last quarter. The drop is attributed to various factors including the closure of several ransomware groups, whether it be of their own volition or the actions of global law enforcement agencies and governments.

Targeted Industries:

The top-targeted industry continues to be telecommunications, following a trend where it was among the top targeted sectors in Q4 2021 and Q1 2022, closely followed by organizations in the education and healthcare sectors. Other targeted verticals include financial services, local government, food services, retail, automotive, information technology, production and manufacturing. Meanwhile, the United States continues to be the top targeted country followed by Europe, Asia, North America and Middle East. Commenting on the report's findings, Fady Younes, Cybersecurity Director, EMEA Service Providers and MEA said: "Organizations across countries of the Middle East and Africa hold a huge amount of sensitive data that is prone to cyber threats and needs to be secured. With cyberattacks becoming more sophisticated, the demand for comprehensive cybersecurity solutions is increasing." He added: "Cisco is uniquely positioned to support governments and businesses of all sizes and across industries in our region, addressing the cyber security challenges they are facing, and helping them increase their security resilience." In order to protect from these threats, Cisco highly recommends organizations to implement multi-factor authentication (MFA), such as Cisco Duo, on all critical services. Endpoint detection and response solutions like Cisco Secure Endpoint are also key to detecting malicious activity across machines and networks. Cisco Secure Firewall can help protect from commodity trojans and malware such as Qakbot, , while Cisco Secure Email and Secure Malware Analytics can help protect users from from targeted phishing emails and business email compromise, which adversaries commonly used this quarter.

Cisco Study Reveals How Hybrid Working Has Improved UAE Employees' Performance



Hybrid working practices in UAE companies have improved several areas of employee performance, according to the findings of the new Cisco Hybrid Work Report. The survey polled 1,050 employees throughout the UAE and discovered that almost 90 percent of those questioned want to work either in a hybrid or fully remote model in the future. These findings are fully in line with global sentiment with just over 91 percent of international respondents agreeing to the same question. The findings are from the Cisco Hybrid Work Report, an extensive study which has examined the impact of digitization and hybrid work on performance with a focus on productivity, quality of work, new skills and growth. It is part of a wide-ranging survey that focused on the role of the hybrid workplace on wellbeing and readiness across a variety of company and individual factors such as company culture; technology; and cybersecurity as well as financial; physical; mental well-being and more. Reem Asaad, Vice President, Cisco Middle East and Africa, said: "The traditional model that required employees to follow a strict timetable set out by employers has now changed. In today's UAE workplace, employees are defining hybrid work and that has resulted in benefits for both employer and employees. As the findings of the Cisco Hybrid Work Report clearly show, employees are far more comfortable as a hybrid workforce and companies should take note and adapt accordingly – both from a technology and cultural readiness perspective. After all, they will be the ones to benefit through higher staff performance." Those questioned for the study said hybrid and remote working practices had a positive impact on the quality of their work and productivity. In all, 67 percent of those polled said the quality of their work has improved due to the hybrid workplace model. Almost two-thirds of respondents said their productivity levels had risen. The greater flexibility offered by hybrid working is enabling employees to get better at their jobs too. 68 percent replied that they saw greater self-improvement in job knowledge and skills. Meanwhile, an impressive 86 percent said they have been able to learn, grow and succeed in their roles. Despite the initial challenges for businesses and employees in the UAE and across the world when organizations had to rapidly switch to remote working at the outbreak of the pandemic, several digital workspace and collaboration solutions are now in place. It is therefore unsurprising that almost 79 percent of the employees questioned said their role can now be performed just as successfully remotely as in the office. The Hybrid work concept centers the work experience on the needs of the individual employees, giving them a choice to work from home, at the office, or elsewhere. Companies that empower their workers by giving them not only the choice, but also the right technologies to stay securely connected and be able to collaborate, can help to foster inclusiveness, engagement, and a sense of well-being among staff. Cisco's philosophy is that work is "what up do" not "where you go". As a result, it has implemented many practices aimed at supporting the company's own employees to work remotely. This provides Cisco with extensive experience in deploying its extensive range of networking, security and collaboration solutions and workplace strategies to help other organizations to fully realize the potential of remote and hybrid working.

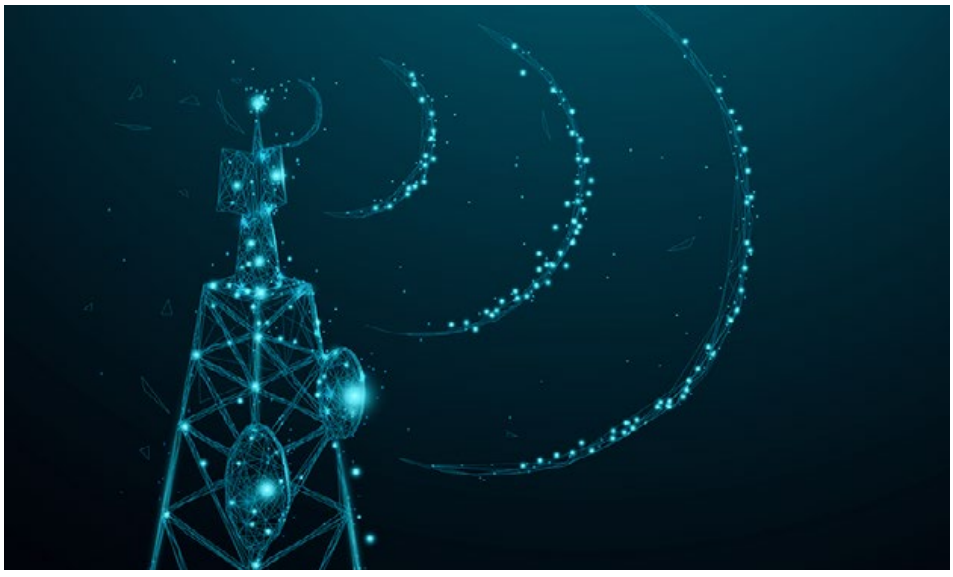
Cisco Research Finds Immersive Digital Experiences are Critical to Maximizing the Benefits of Wearable Technology

A seamless and integrated digital experience is essential for consumers to maximize the potential of smart wearable health and wellbeing devices, according to new research conducted by Cisco across the EMEA region. The research was carried out by Cisco AppDynamics and questioned 4,000 people across in the UAE, UK, France and Germany. It discovered that 83 percent of those polled believe smart wearable technology has the potential to positively transform the health of individuals and improve public health services in general. Wearables are increasingly popular: 38 percent of people currently use at least one wearable technology device, while 71 percent plan to increase their use of such products and related applications over the next 12 months. Thus, wearable technology has reached a defining moment in its evolution, moving from the early adopter stage through to mass adoption. The pace of innovation in wearable healthcare products is high, and users have clear preferences for what they want their devices to do. 84 percent expect their devices to indicate early warning signs of illness and the same percentage want to improve fitness goals. In addition, 78 percent look to wearables to help manage chronic health conditions; 79 percent to identify the spread of infectious diseases; and 77 percent to support healthy eating. 83 percent of consumers believe that having reliable, real-time access to health data and accuracy of this data is critical to a good user experience. In fact, the quality of the experience is so important that 76 percent of those questioned said they would stop using a specific wearable device or application if they had a bad digital experience. Perhaps more worryingly for smart wearable manufacturers and app developers is that 59 percent of respondents said a bad digital experience with one wearable device or application would put them off trying other health or wellbeing wearable technology. The biggest causes of bad digital experiences are device crashes (54 percent), slow or unresponsive performance (51 percent) and data privacy concerns (51 percent). For 84 percent of people, trust is a critical factor when choosing a wearable medical device or application brand. Despite these reservations the overall outlook for such products and services is positive with 79 percent of consumers feeling excited about the potential benefits that wearable technology could bring. The findings of the Cisco AppDynamics research are clear. Wearable technology brands must be able to deliver a seamless and reliable digital experience to consumers at all times. Failure to do so will see many users switch to rival products or abandon the wearable healthcare market altogether. To avoid this, manufacturers and app developers should adopt the latest tools to manage and optimize performance and availability across a complex IT environment. This means ensuring their technologists have access to a single, unified view of IT performance, right across the IT estate — what's called full-stack observability. Furthermore, these wearable technologies must be able to connect to this IT performance data with real-time business metrics, to quickly identify issues that may harm the end-user digital experience.

Open RAN: Policy and Industrial Perspectives from Around the World

Cullen international's Global Trends benchmark on open radio access networks (open RAN) covers Australia, Brazil, Canada, China, the European Union (EU), India, Indonesia, Japan, Korea, Saudi Arabia, Singapore, South Africa, the United Kingdom (UK), and the United States (US). The main findings of Cullen's research show that:

- Brazil, Japan, the UK, and the US issued strategies on open RAN, although specific measures to promote adoption of open RAN vary widely.
- Other governments, including several countries in Asia, opted for a more neutral approach, at least publicly, leaving open RAN discussions to industry.
- Around 30 major telecommunications groups, vendors, and technology companies, including from China, Europe, Japan, Korea, and the US, have taken the lead in open RAN standardization work, in the context of two main industry initiatives, the O-RAN Alliance and the Telecom Infra Project (TIP).
- Large scale, cloud-native open RAN deployments are underway only in India



(Vodafone Idea), Japan (NTT Docomo, Rakuten) and the US (DISH). Several other telecommunications groups, including MTN, Orange, Telefonica, and Vodafone, have carried out tests and small rural deployments across different continents.

Although open RAN revenues are growing rapidly by some estimates, they still represent a very small proportion of the global RAN market. It remains unclear whether the open RAN architecture will deliver on the promises of:

- increasing competition in the market for network equipment;
- reducing the total cost of ownership of mobile networks; and
- increasing security of communications.

Cullen International Report on Americas Spectrum Profiles

Governments in the Americas are responding to increasing demand by allocating and awarding more spectrum to IMT services.

Awards ongoing in 2022 include:

- In the USA, the FCC launched auction 108 in July 2022 to award 117.5 MHz in the 2.6 GHz band (2496-2690 MHz)
- In June 2022, Argentina published the rules to assign on demand up to 2x30 MHz of spectrum in the 2.6 GHz band; and
- Canada is holding a consultation related to a future award of the mmWave bands (26 GHz, 28 GHz and 38 GHz) to support 5G services and also approved rules to auction 250 MHz in the 3.8 GHz band in October 2023.

Colombia, Costa Rica, Ecuador and Peru also announced spectrum awards which are planned for 2022 and 2023, after being postponed from previous years. Most of the awards include the mid-band spectrum.

According to Cullen International's research, as of August 2022, countries in the Americas region have assigned an average of 497.5 MHz in spectrum below 6 GHz, to be exploited for mobile services.

The USA, Brazil and Canada have assigned the most spectrum for mobile services in the region, with the USA having assigned the largest amount of spectrum in the mid–bands and mmWave bands.

Ten other countries have assigned more mobile spectrum than the regional average: Peru, Mexico, Chile, Dominican Republic, Costa Rica, Uruguay and Colombia. Nearly all of these countries held auctions between 2020 and 2021, with Peru planning a new auction in 2022.

New-Generation Satellite EUTELSAT KONNECT VHTS Built by Thales Alenia Space Heading to Kourou Launch Site

EUTELSAT KONNECT VHTS satellite, the state-of-the-art and largest satellite ever put into orbit by international operator Eutelsat Communications (Euronext Paris: ETL) is now on its way to Europe's Spaceport in Kourou, French Guiana, by boat, for a launch planned 6 September 2022 on board an Ariane 5 rocket. EUTELSAT KONNECT VHTS, a very high throughput satellite built by Thales Alenia Space, is to deliver high-speed broadband and mobile connectivity across Europe. With a Ka-band capacity of

500 Gbps, EUTELSAT KONNECT VHTS is the largest geostationary satellite ever ordered to date in Europe and will embark the most powerful on-board digital processor, offering capacity allocation flexibility and an optimal spectrum use. This new-generation satellite, offering a capacity seven times that of its brother satellite EUTELSAT KONNECT launched in 2020, comes with several major firmly committed customers for satellite broadband connectivity, namely Orange via its Nordnet affiliate for the French coverage, Telecom Italia Mobile over Italy and Thales Alenia Space to serve notably the government connectivity services. These commitments showcase the ability of satellites to provide an attractive solution for bridging the digital divide, at a time when access to connectivity plays a major role in both economic and social development. Pascal Homsy, Chief Technical Officer at Eutelsat, said: "With EUTELSAT KONNECT VHTS we are bringing connectivity to a next level. Defying the odds, it is the most powerful satellite to join the Eutelsat fleet. It will deliver 230 beams over Western Europe and is equipped with a Digital Transparent Processor of 5th generation which will give a considerable advantage in terms of frequency flexibility onboard. A state-of-the-art piece of the finest technology built by our partners Thales Alenia Space that I would like to hereby acknowledge as EUTELSAT KONNECT VHTS sets off for the Guiana Space Center." Marc Henri Serre, EVP Telecommunications at Thales Alenia Space, added: "EUTELSAT KONNECT VHTS is the satellite of all superlatives for a crucial mission aiming to bridge the digital divide by providing connectivity everywhere in Europe. It is the most capacitive satellite ever built by Thales Alenia Space and our teams provided all the state-of-the art technologies to make it possible. We are really proud to see it ready for shipment to the launch pad and are eager to start the launch campaign."

Satellite Operators Eutelsat and OneWeb Sign Merger MoU

French-backed satellite operator Eutelsat Communications has signed a Memorandum of Understanding (MoU) with shareholders of UK-based OneWeb to merge the two companies in an all-share transaction. The move is aimed at combining Eutelsat's 36-strong fleet of geostationary (GEO) satellites with OneWeb's constellation of 648 Low Earth Orbit (LEO) satellites, of which 428 are currently in orbit, creating an entity strongly positioned to address the fast-growing global connectivity market. A press release issued notes that the potential transaction builds on the deepening collaboration between Eutelsat and OneWeb, begun with the equity stake acquired by Eutelsat in OneWeb in April 2021, the global distribution agreement between Eutelsat and OneWeb announced in March 2022, and a new exclusive commercial partnership addressing mainly the European and global cruise markets, also signed today. The transaction would be structured as an exchange of OneWeb shares by its shareholders (other than Eutelsat) with new shares issued by Eutelsat, such that, at closing, Eutelsat would own 100% of OneWeb (excluding the 'Special Share' of the UK Government). OneWeb shareholders would receive 230 million newly issued Eutelsat shares representing 50% of the enlarged share capital. Eutelsat would continue to be listed on Euronext Paris and apply for admission to standard listing on the London Stock Exchange, while OneWeb's headquarters would remain in the UK. The MoU values OneWeb at USD3.4 billion. The transaction is subject to clearance from relevant regulatory authorities and conditional on approval by an Extraordinary General Meeting (EGM) of Eutelsat shareholders to be held by the end of H1 2023. Eutelsat investors Bpifrance and Fonds Strategique de Participations have already undertaken to vote in favors at the EGM.

Huawei Launches Spark Ignite 2022 for Thai Start-Ups

Thailand has been launched by Huawei and its partners from the government and the private sector. This competition is intended to accelerate innovation within Thai startups and promote their products and services to help them compete in today's global market. The competition is also an important part of Huawei's commitment to supporting Thailand in becoming the "Digital Hub of ASEAN" by fostering digital talent across the country.

Spark Ignite 2022 – Thailand is currently open to all startups who want to push the boundaries of their perceived limits and achieve their dreams by partnering with Huawei. Huawei will also provide ICT technology support, capital resources, and commercial know-how to the startups who join the program. The first place winner of the competition will receive US$40,000 in cash, US$125,000 in credit on Huawei Cloud, and an opportunity to bring their products and company onto another level using Huawei's onto a global platform. They will also receive a place in the Top 50 Global Startups of SLINGSHOT 2022 competition, as part of the SLINGSHOT x SWITCH event. Up to 25 participants of Huawei Spark Ignite 2022 will be eligible for prizes. Thai Minister of Digital Economy and Society (MDES) Chaiwut Thanakamanusorn said, "Over the last few years, Thailand has accelerated its digital economic and social development in line with our national strategy. Together, government authorities, industry partners, start-ups, and digital products developers in Thailand have all been able to contribute to the growing digital ecosystem that our growing digital infrastructure and data economy has fostered, and Thai. Huawei has demonstrated its continued commitment to laying a solid foundation through a variety of initiatives, including the Spark project, which further supports this ecosystem growth." Huawei Thailand CEO Abel Deng spoke about the goals of the Spark Ignite 2022 - Thailand startup competition: "Huawei believes that the key to drive sustainable digital development lies in a thriving SME and start-up ecosystem. Innovation never stops, and neither will our commitment to supporting Thailand's digital ecosystem. Looking into the future, we remain committed to cultivating SMEs in Thailand through Spark Program which we hope will ignite the potential of Thai start-ups and help Thailand become a Digital Hub for the ASEAN region." Asst. Prof. Nuttapon Nimmanphatcharin, President of Thailand's Digital Economy Promotion Agency (DEPA), also explained that the Thai government recognized the gaps in terms of strategy, skills, digital capabilities, and funds between digital startups and large corporations in Thailand. Because of this, he said, "We are thankful for Huawei's continued work with the DEPA through important programs like Spark Ignite 2022 that promote the integration of public-private partnerships to that, together, we can scale up Thailand's digital start-ups and help them compete in the world market." The Executive Director of Thailand's National Innovation Agency (NIA) Pun-Arj Chairatana also said: "The NIA is glad to witness the Spark Program 2022 - Thailand's officially launched today. The NIA is willing to work together with partners including Huawei to cultivate the SME ecosystem and enable Thailand to build an ASEAN digital hub."

Thai PM Gives Huawei Thailand Cybersecurity Excellence Award

The Thai National Cyber Security Agency (NCSA) has awarded Huawei and several other organizations the "Prime Minister Awards – Thailand Cybersecurity Excellence Award 2022" at a ceremony held at Santi Maitri Building Government House. Huawei Thailand's CEO Abel Deng accepted the award from Prime Minister Prayut Chan-o-cha on behalf of the multinational ICT provider. At the award ceremony, Prime Minister Prayut congratulated several organizations, including Huawei and expressed his appreciation for Huawei's work in cultivating cybersecurity talent, sharing cybersecurity knowledge and skills, and promoting cybersecurity awareness and capabilities in Thailand. This prestigious distinction reflects Huawei Thailand's commitment to excellence, innovation, and leadership in information security, as well as the work the company has done in raising awareness on cybersecurity and data protection across the country. Over the past 12 months, Huawei Thailand joined a series of cybersecurity-related initiatives, including the Thailand National Cyber Week and the Cyber Defense Initiative Conference, and collaborated with the NCSA on "Thailand Cyber Top Talents 2021". This cyber defense competition was the first of its kind in Thailand and brought together over 800 outstanding IT students and personnel. Huawei also sent a team of

Thai representatives to the Cyber SEA Game 2021 competition this year as part of their own initiatives to support cybersecurity talent within Thailand. The Thai team won first place in this competition and was named the best cybersecurity team in the ASEAN region. Earlier this year, Huawei Thailand's Chief Information Security Officer was invited to contribute to an executive-level cybersecurity training conference for Thai government agencies and other private sector actors. On August 5, 2022, the company also signed a Memorandum of Understanding (MoU) with the NCSA to develop and accelerate cybersecurity skills for Thai IT personnel. Plans are underway for 4,000 trainees to benefit from practice-based learning through Huawei's e-Lab online learning platform, which will provide real infrastructure and hands-on cybersecurity workshops over the course of 3 years for basic, intermediate, advanced, and expert level learners. Thailand's Cyber Security Awards were created to honor individuals and organizations who have made a profound impact on the country's cybersecurity capabilities. They are conferred to organizations in recognition of their commitment, leadership in their field, and sound business practices and strategies. Huawei Thailand has been recognized for its continuous efforts to address the challenges created by new technologies and for updating and sharing its innovative cybersecurity solutions with academic and government organizations, as well as private partners. The Thai Minister of Digital Economy and Society Chaiwut Thanakamanusorn congratulated

Huawei Thailand on this achievement: "In today's digital world, cybersecurity and data protection are vital to Thailand's development and ensure our country's journey towards Thailand 4.0. Huawei has been a reliable and dedicated partner, sharing the experience, technologies, and talent cultivation standards it has gained over years of operations." General Prachya Chalermwat, Secretary General of the NCSA, also said: "Our collaboration with Huawei Thailand, a public-private partnership, is critical in order to establish a globally trusted cyberspace in the country. We are honored to present the 'Prime Minister Awards – Thailand Cybersecurity Excellence Awards' to five excellent private companies, including Huawei, as a leading global ICT company and solutions provider. Collaborating with all stakeholders in an open, transparent, and responsible manner will enable everyone to enjoy all the benefits brought by technological advances." When receiving the award, Huawei's Deng said, "It is a great honor and privilege to accept this award on behalf of Huawei. At Huawei, we continue to collaborate with partners who share our vision of bringing Thailand to the forefront of the digital age while ensuring the highest possible cybersecurity protection levels. We will continue to help raise awareness and share best security practices and procedures. In line with our policy 'Grow in Thailand, Contribute to Thailand", we will make every effort possible and use all available resources to help the country become a secure digital hub in the Asia Pacific region."

The Entrepreneurial Nation Launches 'Scaleup Digitize' in Partnership with Huawei to Support Digital Transformation of SMEs

The Entrepreneurial Nation, the national project by the Ministry of Economy designed to transform the UAE's entrepreneurship landscape into a globally competitive and innovative one, launched the ScaleUp Digitize program in partnership with Huawei. The program is aimed at promoting innovation and the digital transformation of both startups and SMEs in the UAE by enabling them to enhance their digital infrastructure through the adoption of cloud technologies and services. The integration of these services are set to expedite their growth to become Unicorns with the ability to compete in local and international markets. ScaleUp Digitize falls under the ScaleUp program, which is one of the three main tracks of The Entrepreneurial Nation. The partnership with Huawei reflects the UAE's focus on ensuring the development of its entrepreneurial sector as a major pillar of the new economic model; enhancing its sustainability and agility; and its alignment with futuristic trends based on knowledge, innovation, technology, and digitization. These efforts are in line with the Principles of the 50 and the goal to strengthen the UAE's position as a leading global hub for entrepreneurship, talent and FDI. The Ministry further announced that only 15 SMEs will be selected to participate in the first cycle of the program. Each selected company will receive Huawei Cloud training and vouchers valued at up to AED 60,000. These vouchers can be redeemed to purchase cloud computing services, cloud storage, cloud network, and cloud database, in addition to receiving hands-on training in Huawei Cloud technologies, AI, and big data tools.

Huawei 2022 H1 Financial Results Reveal Solid Performance with a Focus on the Future

Huawei announced its business results for the first half of 2022. Overall performance was in line with forecast. In 2022 H1, Huawei generated $45 billion in revenue, with a net profit margin of 5.0%. The Carrier BG contributed $21.3 billion, the Enterprise BG $8.1 billion, and the Device BG $15.1 billion. "While our device business was heavily impacted, our ICT infrastructure business maintained steady growth," said Ken Hu, Huawei's Rotating Chairman. "Moving forward, we will harness trends in digitalization and decarbonization to keep creating value for our customers and partners, and secure quality development." Huawei's R&D spending reached a high point in 2021. The company invested about USD 22.38 billion, representing 22.4% of its total revenue and bringing its total R&D expenditure over the past ten years to over USD 132.5 billion. Moving forward, Huawei will continue to invest heavily in R&D. In the first half of this year, the carrier business saw steady growth in line with forecasts. The business reported stable development in 5G, while other business modules like optical networks, cloud core networks, services, and software grew rapidly. Huawei's exploration into 5GtoB has been highly rewarding. Working with carriers and partners, the company had signed more than 5,000 commercial contracts for industrial 5G applications by June 2022. In some Middle East countries, such as Saudi Arabia and the UAE, Huawei's 5GtoB offerings have seen large-scale commercial deployment across numerous industries, including ports, mining, manufacturing, and oil and gas. 5G Fixed Wireless Access has seen wide adoption in home applications, helping carriers achieve business success with 5G among home and enterprise users. During H1, Huawei's enterprise business revenue grew steadily, exceeding 27% both in and outside China. In the second half of 2021, the company established "integrated teams". These teams focus on select industries of strategic importance to the company and work closely with partners to create more customer value. Characterized by shorter management chains, integrated teams are designed to more rapidly mobilize internal resources and delve deep into industry-specific scenarios to explore which technologies will best serve customers. Huawei Cloud maintained rapid growth in the first half of this year and has been widely recognized by customers across several sectors like government, finance, manufacturing, and the Internet. In terms of product innovation, Huawei Cloud closely follows its "Everything as a Service" strategy. In the first half of 2022, Huawei Cloud released 15 innovative services, covering Infrastructure as a Service, Technology as a Service, and Expertise as a Service. Moving forward, Huawei Cloud will continue to invest and innovate according to its "Everything as a Service" strategy and build the best cloud platform for industry-specific innovation as the world heads towards a golden decade of SaaS. Huawei Cloud will also forge a new partner system and help partners improve their capabilities to achieve shared success. With Huawei Cloud serving as the foundation, Huawei will enable developers to grow and contribute to a thriving developer ecosystem through developer programs like the Huawei Cloud Developer Program. Huawei Cloud has continued to expand its global presence. Together with partners, Huawei Cloud is currently operating 65 Availability Zones in 27 Regions, including UAE and the upcoming Saudi Region. According to Gartner, Huawei Cloud is the 5th largest IaaS vendor in the world. In the device business, the HarmonyOS ecosystem continues to grow rapidly. HarmonyOS has already been deployed on more than 300 million Huawei devices and HarmonyOS Connect has attracted more than 2,000 ecosystem partners. Over 170 million third-party HarmonyOS Connect devices have been shipped. As the world becomes fully connected, Huawei will continue to pursue this HarmonyOS-centered device ecosystem using an open-source strategy and allow more developers to use, contribute to, and benefit from Huawei's capabilities. Green development is now a global consensus. To support the green agenda and help drive the digital economy forward, Huawei has continued innovating and proposed a three-layer solution: green sites, green networks, and green operations. Huawei aims to help carriers enhance network energy efficiency in all areas. By integrating digital and power electronics technologies, Huawei is developing innovative digital power products and solutions that will drive the shift towards a green and low-carbon energy sector. By June 2022, Huawei's Digital Power solutions had already helped customers generate 588.5 billion kWh of green power and save 17 billion kWh of electricity. These efforts have offset 290 million tons of CO2 emissions, equivalent to planting 390 million trees.

China Mobile Tianjin and New Tianjin Steel Group Achieve the First Commercial Use of Huawei's 8T Distributed Massive MIMO in the Steel Industry

China Mobile Tianjin and Huawei completed the commercial deployment of 5G 8T distributed Massive MIMO technology in the cold rolling workshops of New Tianjin Steel Group, marking the first time that the technology was adopted in steel production workshops. Tests on Huawei's EasyMacro pole sites revealed a cell uplink throughput of up to 1 Gbps, with stable latency of 20 ms at 99.99%. Inspired by the fresh wave of digitalization among businesses throughout China, New Tianjin Steel Group sets its sights on building a leading 5G smart factory to increase efficiency and improve safety in loading, unloading, hoisting, and other production processes. Thanks to the presence of 5G technologies, data related to the production equipment and environment is collected systematically and onsite videos are rendered in high definition to ensure accurate remote control, making it possible to implement unmanned operations for bridge cranes and other machinery. In New Tianjin Steel Group, cold rolling workshops are the common application for the technology. The workshops include 18 ground cameras and four bridge cranes, and each bridge crane comes equipped with four high-definition cameras and a remote PLC unit, which means that the 5G networks must guarantee a high uplink throughput and a low latency to ensure reliable data transmission. The bridge cranes travel a distance of 300 m in the workshop, posing enormous challenges with regard to both the stability and consistency of latency-critical remote-control services. Huawei's 8T distributed Massive MIMO is uniquely positioned to overcome these challenges, as it provides 5G networks with access to lighting-fast transmissions and huge uplink throughput, while avoiding latency jitters during the long-distance movement of connected devices. This superb 'high uplink and low latency' performance lays the foundation for New Tianjin Steel Group's bridge crane operations as well as in a number of other manufacturing processes. China Mobile Tianjin is committed to providing a premium experience by pursuing innovative solutions. The company will continue to collaborate with Huawei, with the goal of facilitating digitalization across industry via competitive 5GtoB networks. Eric Sun, Vice President of Huawei's 5G Product Line, emphasized the significance of this latest project: "5G distributed Massive MIMO fulfills diverse deployment requirements," he said. "Its application in New Tianjin Steel Group demonstrates that Massive MIMO can ensure high uplink and low latency for industrial services across 5G macro, pole, and indoor products. Huawei will work with customers and partners to make 5G accessible to all manufacturers and facilitate the adoption of smart, digital solutions."

China Unicom Beijing and Huawei First to Commercialize 64T64R MetaAAU for Better In-Depth Coverage in Residential Areas

China Unicom Beijing spearheaded the commercialization of Huawei's brand-new 64T64R MetaAAU in a pilot urban residential area in Tongzhou District, which is home to a large number of 5G users who have a huge demand for 5G services. The rollout of 64T64R MetaAAU resulted in a significant increase in user-perceived rates. Even at a building near the cell edge, the downlink user-perceived rate was able to reach 100 Mbps on every floor. This breakthrough technology transcends the longstanding challenges facing deep residential area coverage to further develop ubiquitous gigabit high-quality 5G networks. 64T64R MetaAAU is an upgrade of the Huawei MetaAAU series that adopts extremely large antenna array (ELAA) technology for optimal performance and energy efficiency. The number of channels has grown from 32T32R to 64T64R, meaning this brand-new green 5G base station Massive MIMO product can deliver strong coverage, large capacity, and outstanding experience. Since the commercialization of 5G, China Unicom Beijing has built gigabit 5G networks in urban areas for continuous coverage

by deploying Massive MIMO products based on the 3.5 GHz large bandwidth. In the first half of this year, China Unicom Beijing also extended gigabit 5G networks in multiple villages. However, the limited uplink coverage and small coverage radius of mid and high bands pose challenges for network construction in scenarios requiring strong coverage, such as densely populated urban areas. MetaAAU boosts coverage and is the ideal option for China Unicom Beijing for delivering enhanced coverage and gigabit 5G experience both indoor and outdoor through wall penetrating signals. Fan Liqun, head of China Unicom Beijing's 5G co-construction and sharing work team, said, "In the first half of this year, we deployed 32T32R MetaAAUs at over 1,000 sites to cement our digital village strategy. This time, we deployed Huawei's brand-new 64T64R MetaAAUs in a residential area, and we were amazed at how well it is performing on the live network. We look forward to widely deploying this product in the future to provide our users with better 5G experience in more scenarios." "Since the MetaAAU was launched, we have worked with China Unicom Beijing to commercialize it in different scenarios on the live network." said Ritchie Peng, President of Huawei 5G Product Line. "I am delighted to see the excellent performance of MetaAAU on the live network in residential areas. We will continue to work with China Unicom Beijing to test this product in more scenarios and fully unleash the power of Massive MIMO for operators."

Huawei MAE Enables Intelligent AR Site Inspection for China Mobile Anhui

China Mobile Anhui, Huawei MBB Automation Engine (MAE) and Huawei Customer Support (CS) launched the Intelligent AR Site Inspection solution. So far, this solution has been applied at scale in Hefei, Wuhu, and two other cities in Anhui province. It has been used more than 10,000 times in three months to check nearly 1,000 equipment rooms, improving inspection efficiency by 50%. China Mobile Anhui is now looking to bring this solution to even more cities across the province. Mobile communications network is the information infrastructure of this generation. In order to ensure stable mobile communications network operation, operators must carry out regular inspections of equipment rooms and other site resources. Traditional inspections, however, are labor-intensive and costly. Operators have to find intelligent solutions to improve efficiency and quality while reducing costs. Towards this goal, China Mobile Anhui takes the lead in innovating site inspection. With the help of Huawei MAE and CS teams, it combines intelligent algorithms with AR and expert experience to develop the Intelligent AR Site Inspection solution. MAE digitizes and learns the CS Team's experience from routine inspections through intelligent algorithms to constantly optimize inspection models. This, in turn, enables intelligent problem identification, fault association analysis, and intelligent decision-making, providing the following benefits:

- Automatic equipment room inspection using image recognition: Inspection covers 25 items across 11 categories, such as door locks, batteries, grounding, and surge protection. It can identify nine types of problems, such as rusty batteries, abnormal temperature displays, and expired warranties. Voice alarms and a visual display help engineers quickly and accurately collect photos, increasing inspection efficiency and making sure all inspection items are checked.
- Proactive risk rectification using knowledge-graphs: Inspection personnel check for abnormal equipment and performance alarms by following inspection rules. If there are issues, personnel can refer to MAE's online knowledge-graphs or easily contact experts of the Network Operation Center (NOC) who can view images transmitted from AR devices in real time and give accurate instructions to solve problems. This greatly improves equipment room inspection and problem handling efficiency.

China Mobile Anhui connects Intelligent AR Site Inspection to a third-party system for outsourced maintenance and brings the application online, turning site inspection and review into an online, automatic, and intelligent process with a 50% higher efficiency and an 80% accuracy. Labor costs are greatly reduced, with an estimated cost saving of millions of CNY per year. Commenting on the success, Ma Hongbo, President of Huawei Wireless MAE Product Line, said: "We will continue to enhance MAE intelligent inspection capabilities, and our goal is to bring it to 85% of Anhui site inspection items and improve the accuracy to over 90% by the end of the year. We will broaden and deepen cooperation with our partners in network intelligence to build a benchmark for autonomous networks." Huawei MAE will continue to drive digitalization and sustainable development across the mobile industry through continuous innovation and industry exploration.

Huawei Proposes a Three-Level Intelligent Digital Transformation Architecture, Helping Carriers Open the Blue Ocean of Digital Intelligence

At the Operations Digital Transformation Summit of Win-Win Huawei Innovation Week, Peng Song, President of Huawei Carrier BG Marketing & Solution Sales Dept, delivered a keynote speech entitled "Opening the Blue Ocean of Digital Intelligence Towards a New Era of DigiVerse". He pointed out that digital intelligence is the biggest opportunity in the next decade and will provide a new blue ocean for carriers, as well as giving them new impetus. Based on decades of experience in intelligent digital transformation, Huawei works with telecom carriers to develop a three-layer intelligent digital transformation architecture, five-dimensional and five-phase operations intelligent digital transformation maturity model, and three value-oriented transformation paths. In this way, carriers can better embrace new transformation opportunities. "To seize opportunities, carriers need to accelerate their intelligent digital transformation from three levels," said Peng Song. "First, service transformation. Going forward, telecom carriers will focus on differentiated experience-based services, data services, and industry digital services. They need to implement business loop closure by leveraging ecosystem, platform, and network to drive the rapid growth of the second curve. Second, operations transformation. Carriers need to focus on the user journey, in which products, services, platforms, and networks are intricately linked. Given that 80% of service decisions are projected to be driven by data, they need to maximize data value for value-based operations. Third, infrastructure transformation. Carriers are expected to provide secure, green, intelligent, and ubiquitous networks in which computing and connection resources are integrated." Intelligent digital transformation is a process requiring continuous optimizations. During the intelligent digital transformation of operations, Huawei cooperates with industry organizations to form a five-dimensional, five-phase maturity assessment model based on its own transformation experience as well as that of more than 100 carriers. The five dimensions of the model include transformation strategy, value measurement, process optimization, data/platform/network, and organization talent, and the assessment is conducted according to five maturity phases ranging from L1 to L5. Intelligent digital transformation of operations is also a systematic project. Regarding this, Zhou Xiaohua, Director of Huawei Service & Software Marketing & Solution Sales Dept, delivered a keynote speech entitled "Breaking Six Misunderstandings and Accelerating Intelligent Digital Transformation of Operations", in which three key paths were introduced to help carriers transform in terms of intelligence integration in digital services, data-driven intelligent experience, and predictable intelligent digital O&M. Huawei has rolled out a broad portfolio of products and solutions, such as the Artificial Intelligent Contact Center (AICC), SmartCare Smart series, and AUTIN i series. These help support high-value ToC, ToH, and ToB scenarios of carriers. We help carriers improve quality and efficiency through automation and intelligence to implement precision marketing and lean operations that are market-, government-, and enterprise-oriented. Huawei, in particular, works to enable a differentiated carrier ToB experience, and empowers industry innovation and revenue increase through smart operations. On the one hand, immersive digital marketing is provided for industry customers in the marketing phase, while deterministic SLA assurance is provided through digital integration and service-level O&M capabilities. On the other hand, mature digital intelligence capabilities are adopted to enable digital intelligence of industry operations and customer service, as well as data as a service (DaaS) to generate revenue in new digital services. Finally, Huawei has built the Digital Intelligent Transformation DigiVerse Center, Digital Intelligent Transformation Columbus Exhibition Hall, and Digital Intelligent Transformation Innovation and Practice Center. Leveraging experience in valuable scenarios in the actual transformation process, Huawei provides more than 10 cloud showcases around the world and makes it possible to have immersive dialogues with more than 300 experts while enjoying scenario-based experiences. Together, Huawei, carriers, and business partners can carry out joint innovation, and ultimately embrace the blue ocean of digital intelligence. The Win-Win Huawei Innovation Week was held from July 18 to July 21 in Shenzhen, China. Together with global operators, industry professionals, and opinion leaders, we dive into topics such as 5.5G, green development, and digital transformation to envision shared success in the digital economy.

Huawei Pakistan Holds Award Ceremony for ICT Global Competition Winners

Huawei Pakistan held an award ceremony for the winners of the Sixth Huawei ICT Competition 2021-2022 Global Final that took place in Shenzhen and drew to a close on June 25th. The award ceremony was attended by Pakistan's First Prize winning team consisting of; Sateesh Kumar, Iqra Fatima, and Bhagchand Meghwar, also in attendance was Deputy CEO Huawei Pakistan, Mr. Ahmed Bilal Masud and Public Relations Director Mr. Wu Han. During the ceremony, the team was awarded the first prize of 20,000 USD, along with mobile phones for each participant. The competition attracted 150,000 hopeful students from more than 2000 universities in 85 countries and regions around the world. After making it through the national and regional competitions, 130 teams from 43 countries and regions faced off in the global final. Pakistan's team one, and team two; Hafiz Rizwan, Adnan Ali, and Mukhtar Memon participated in the Network Category of the Practice competition with Pakistan Team One clinching the 1st prize, and Pakistan Team Two grabbing the 3rd prize. In the Innovation Competition, two further teams from Pakistan participated; Osman Ahsan Sheikh, Muhammad Abdullah Ahsan Sheikh and Aqsa Amir represented team 'Homevism', comprised of students from NUST. The second team, 'Boltay Haroof', from LUMS consisted of Umer Farooq, Tabish Rafiq and Areej. In the Innovation competition, Team Boltay Haroof won the 2nd prize, while Team Homevism was awarded the 3rd prize. Star student of the winning team, Mr. Bhagchand, stated at the ceremony, "The Huawei ICT Competition served as a platform that allowed us to compete with and win against teams at a regional and international level for Pakistan." Team member, Iqra Fatima gave her comments about her experience, "After competing in different rounds, I qualified into the top six, after which our team was able to qualify the Regional final as well as the Global final with the first position." Sateesh Kumar stated, "I belong to a small town in Sindh, and did my bachelors from Mehran University. I heard about the Huawei ICT Competition through my teacher who motivated me to take part in the competition. This is an amazing initiative by Huawei, giving equal opportunities to engineering students from all over Pakistan to showcase their talent, whether they're from large bustling cities or small remote towns." Deputy CEO Huawei Pakistan congratulated the winners, "From the bottom of my heart, I congratulate every participant for their success in this competition. This has been the beginning of a great opportunity for you, and you have all walked away from this event with a deeper understanding of ICT and the potential to make a name for yourselves in the ICT industry." The competition has always been well received in Pakistan as it promotes innovation and creativity while serving as a link between the classroom and the professional workplace. By nurturing university students' talent in Pakistan, it also contributes to increasing national ICT competitiveness while enhancing digital transformation efforts. The next installation of the global event, The Huawei ICT Competition 2022, will be held under the theme 'Connectivity, Honor, Future', and will run from August to December, and is larger part of Huawei's commitment towards nurturing the next generation of ICT leaders across the world. The competition will welcome thousands of more undergraduate students from countries all across the Middle East. Winners of the regional competitions will receive a certification, future learning opportunities, a USD 20,000 cash prize and more.

Huawei and China Mobile Release White Paper on 5G Energy Efficiency Evaluation

Huawei and China Mobile jointly released the 5G Wireless Network Energy Efficiency Evaluation White Paper 1.0 at the cloud-based "Technology Enables Dual Carbon, Green Leads the Future" Forum of the 2022 Science and Technology Week & Mobile Information Industry Chain Innovation Conference. This white paper provides the industry's first definition of a multi-dimensional energy efficiency evaluation system for 5G wireless networks. It helps accurately measure network energy efficiency and guide network development towards optimal performance and energy efficiency. Green and dual carbon are the two

strategic focuses of the communications industry. The industry still faces challenges in scientifically measuring and evaluating green 5G networks and guiding the industry to continuously innovate in green products and networks. Ever since proposing the green network evaluation concept featuring multi-dimensional energy efficiency metrics in May last year, Huawei has actively carried out research on and verification of innovation in hardware, software, site, and network collaboration. Huawei also defined a multi-dimensional energy efficiency evaluation system that combines experience and energy-saving performance together with China Mobile and other industry partners. Aiming at proposing effective energy efficiency evaluation metrics for building networks, this white paper puts forward new evaluation criteria, such as service experience, to add to existing ones such as the ratio of traffic to energy consumption. It analyzes and proposes a multi-dimensional network energy efficiency evaluation method that covers metrics such as traffic, energy consumption, and performance of wireless networks, to guide logical and scientific evaluation and lead wireless networks towards optimal performance and maximum energy saving. Gan Bin, Chief Marketing Officer of Huawei Wireless Solution, said: "We hope more industry partners will join us to further standardize and promote the multi-dimensional energy efficiency evaluation system across the world to form unified criteria, paving the way for global operators to achieve their green strategic goals."

Nexign BSS Received a Silver Level and a Fourth TM Forum Conformance Certification

The TM Forum Open API certification focuses on solutions complying with the principles of open digital architecture (ODA) and allowing mobile operators to support novel digital services based on the best practices and standards of TM Forum Frameworx. TM Forum Open APIs enable system integration to reduce costs, improve customer experience, and get new revenue opportunities for telecom operators, their partners, and suppliers. Nexign has been a TM Forum member since 2007. In 2020, the company signed the Open API and Open Digital Architecture (ODA) Manifesto, having been de-facto committed to its principles in previous years.

Currently, Nexign BSS has four TM Forum certifications:

- TMF635 – Usage Management

This certificate confirms that Nexign BSS provides standardized integration mechanisms with third-party systems, including user event generation systems and self-service portals.

- TMF622 – Product Ordering Management

This certificate confirms that Nexign BSS allows using a standardized order placement mechanism for a product with the necessary parameters. The order can be initiated in any channel and be seen in another channel if needed.

- TMF620 – Product Catalog Management

This certificate confirms that Nexign BSS provides standardized integration mechanisms with third-party systems, including channels, ordering and pre-order systems, and partner catalogs.

- TMF676 - Payment Management (Received in 2022)

This certificate confirms that Nexign BSS allows using standardized integration mechanisms with third-party systems, including payment gates.

Nokia SaaS Services Strengthened with Key GSMA Security Accreditation

Nokia announced that its iSIM Secure Connect solution has been accredited by the GSMA, the telecom industry group and leading wireless industry representative body, after a rigorous process of demonstrating an ongoing and systematic approach to managing information security risks and protecting data. GSMA's Security Accreditation Scheme (SAS) confirms the quality and capabilities of security and privacy policies, procedures, and controls that play an important role in supporting additional certifications in compliance with other external standards, like the International Organization for Standardization (ISO) 27001, System and Organization Controls (SOC) 2, and Cloud Security Alliance. With the GSMA accreditation in hand, Nokia will now pursue those additional certifications for its other SaaS services later this year and into 2023. GSMA's SAS is typically required as the necessary security grade by CSPs globally, so reaching this significant milestone gives operators and enterprises a high degree of confidence of using Nokia iSIM Secure Connect in a SaaS delivery model. iSIM, or integrated SIM, Secure Connect, through a SaaS delivery model, manages machine-to-machine and consumer device subscriptions for embedded SIM, or, eSIM- and iSIM-enabled devices. iSIM Secure Connect gives control to automate the entire eSIM/iSIM profile lifecycle management process; enables CSPs and enterprises to quickly onboard and manage connected devices at massive scale; and opens opportunities to monetize services linked to trusted digital identities. Since November 2021, Nokia has introduced seven SaaS services, including iSIM Secure Connect, NetGuard Cybersecurity Dome, Nokia Home Device Management, and Nokia AVA NWDAF, which enhances network operations with AI/ML driven closed-loop automation. Mark Bunn, Senior Vice President, Cloud and Network Services at Nokia, said: "Achieving the GSMA certification validates the strength and effectiveness of Nokia's SaaS information security management system (ISMS) and how we are providing the highest security standards and flexibility that meet or exceed the needs and expectations of our customers in all of our SaaS services. Hitting this milestone underscores the progress we are making to greatly improve the time-to-value that CSPs and enterprises can realize by having on-demand access to our SaaS services."

Nokia Selected by the Public Transport Authority of Western Australia to Modernize Rail Communications in Perth with Private Wireless and IP/MPLS Technologies

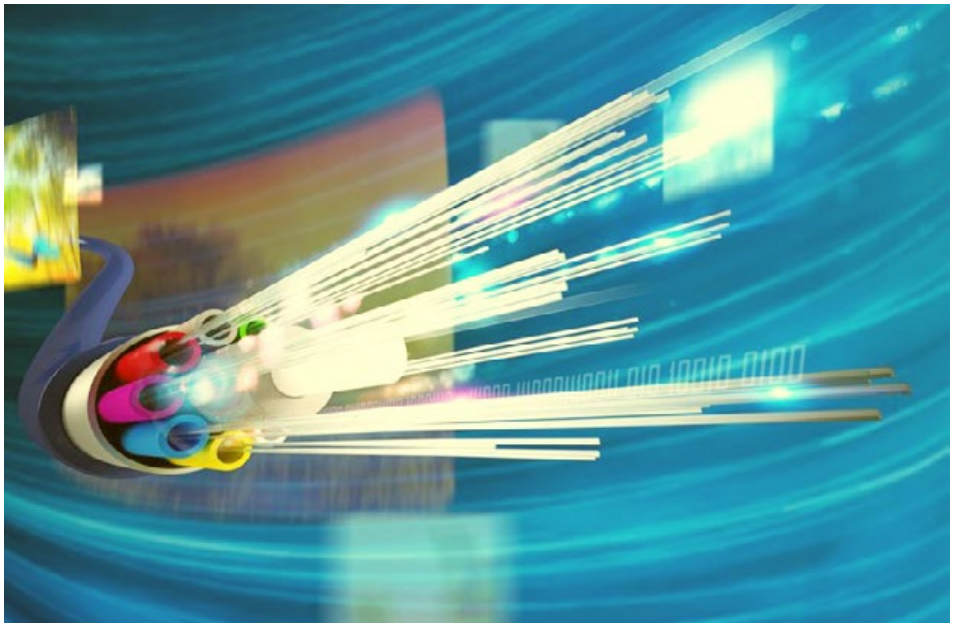
Nokia announced it has been selected by The Public Transport Authority of Western Australia (PTA) to design, build and maintain a next generation railway communications system over the next decade in Perth. METRONET infrastructure and public transport program is the long-term blueprint for Perth's future. As a critical element of the METRONET program and as part of the agreement, more than 160 LTE/4.9G radio sites will be built to modernize the railway communication system that includes additional METRONET track and tunnels with a total of 250km of railway. The solution will be based on Nokia private 4.9G/LTE mission-critical IP/MPLS, Data Center Fabric and microwave backhaul solutions, to support a Communications Based Train Control (CBTC) High Capacity Signaling system for greater accuracy and efficiency compared to traditional signaling systems. Nokia's solution will be used to upgrade the current PTA's narrowband rail radio systems, replacing the existing analogue technology with a high-tech 4.9G/LTE digital platform which is necessary for extremely reliable mission critical voice, high-speed data and video services. The Radio System Replacement project is subjected to the Critical Infrastructure Act 2021 with scope to include a full Cyber Security fabric across all solution elements. Rob McCabe, Head of Enterprise for Oceania at Nokia, said: "We are thrilled to partner with PTA for this prestigious project to design, build and maintain the next-generation railway communications network. Powered by Nokia's private wireless network solution, the new railway communication system will help enhance the accuracy of the system leading to improved experience and safety. Nokia is at the forefront of supporting railway networks accelerate digital transformation for more efficient operations while delivering greater value to the passengers." Nokia has deployed mission-critical networks to more than 2,200 leading enterprise customers in the transport, energy, large enterprise, manufacturing, webscale, and public sector segments around the globe. It has also extended its expertise to more than 485 large private wireless customers worldwide across an array of sectors and has been cited by numerous industry analysts as the leading provider of private wireless networking worldwide. It has worked closely with major railway operators worldwide to bring the benefits of private LTE connectivity and paving the way for the adoption and deployment of Future Railway Mobile Communication System (FRMCS).

When Telecom Fiber can Sense

Somewhere in the Circum-Pacific Belt, the ocean floor is rocked by a powerful earthquake. It triggers a giant tsunami that gathers speed, bearing down on populated islands, coastal towns and cities. Now imagine, the tremors being detected in milliseconds and the alert conveyed to an onshore monitoring center at the speed of light. The alarm is raised and the authorities swing into action, evacuating people from vulnerable locations in good time. In such a scenario, one would be inclined to laud ocean-bottom seismometers (OBS) for saving the day but what if it was an entirely different system. As the world enters the digital age and the Internet becomes ubiquitous, a key facilitator of this transformative change remains hidden from our eyes. Buried in the seabed and in trenches or laid in ducts under city streets and buildings, by roads and railways, a web of fiber optic cables come together to form data superhighways, processing over 95 percent of global telecommunications. Touted as the "backbone" of the Internet there are currently around 486 active or under-construction subsea cables with over 1,300 landings, stretching for more than a million kilometers. Their terrestrial counterparts boast even longer distances. Optical fibers are the Internet's core and enable the immense communication of people, devices, and computers from just a few meters away like in data centers and campuses to massive distances spanning continents and oceans. However, the story does not end here. Subsea and terrestrial cables are emerging in a new avatar, bringing with it huge benefits across a range of applications.

Fiber optic sensing

The telecom sector is rapidly ditching copper wire in favour of fiber optic cables – thin strands of pure glass - each no thicker than a human hair, that facilitates the transmission of light over long distances. Every piece of data that is sent or received on computers and almost every phone call we make is transmitted along fiber. Even mobile phone communications rely on it. Only the last few kilometers is carried through the air. For the past 60 years engineers have been exploring the possibility of using fiber as sensors. "Engineers and scientists have understood the extraordinary opportunity of optical fiber sensing since the early days. The first patent of fiber optic sensing dates to 1960, and for decades, the most imaginative minds have been exploring the many exciting possibilities that it has to offer," says Matteo Lonardi, Research Engineer at Nokia Bell Labs. The most important technology driving fiber optic sensing is Distributed Acoustic Sensing (DAS) which allows for real time measurements along the full length of a cable. As opposed to conventional instruments which depend on sensors working at pre-determined points, distributed sensing leverages on the cable itself to sense the environment. To put it simply, a DAS interrogator connected to one end of the fiber sends out optical pulses and looks at the light that comes back from every single microscopic piece of the fiber, a process known as Rayleigh Backscatter. By gathering up these tiny pieces of light and watching how they change thousands of times per second due to vibrations in the vicinity, the interrogator identifies unique signatures and marks each type of event. DAS is a dedicated sensor that detects acoustic events around the fiber. It needs dedicated hardware and, sometimes, even dedicated fiber - not used for telecommunications. "DAS does not play an active role in data transmission or communications per se but can be positioned alongside the communication line or network to protect the fiber asset or localize cuts," says Dan Danskin, Commercial Manager – DAS at Alcatel Submarine Networks (ASN). In addition to DAS, there are non-dedicated sensors carrying out a different task, but which retains the capability of intelligent sensing. Combined with fiber, coherent transponders are the fundamental block of any modern optical transmission. They convert electrical signals into light and vice-versa, transmitting and receiving hundreds of gigabits per second, thanks to coherent modulation and digital signal processing. When receiving light signals, transponders will carry out several advanced algorithms to remove all the channel corruption added during transmission over fiber to reconstruct the original sent message. Moreover, in current and future generations of transponders within Nokia 1830 PSS products, on top of transmitting and receiving hundreds of gigabits per second, the transponder will carry out advanced monitoring, sensing, and analytics based on all the light propagation information retrieved while performing digital signal processing. A coherent transponder does not have the sole purpose of sensing, yet it uses advancements in digital signal processing to extract sensing and monitoring information without needing dedicated hardware or fiber.

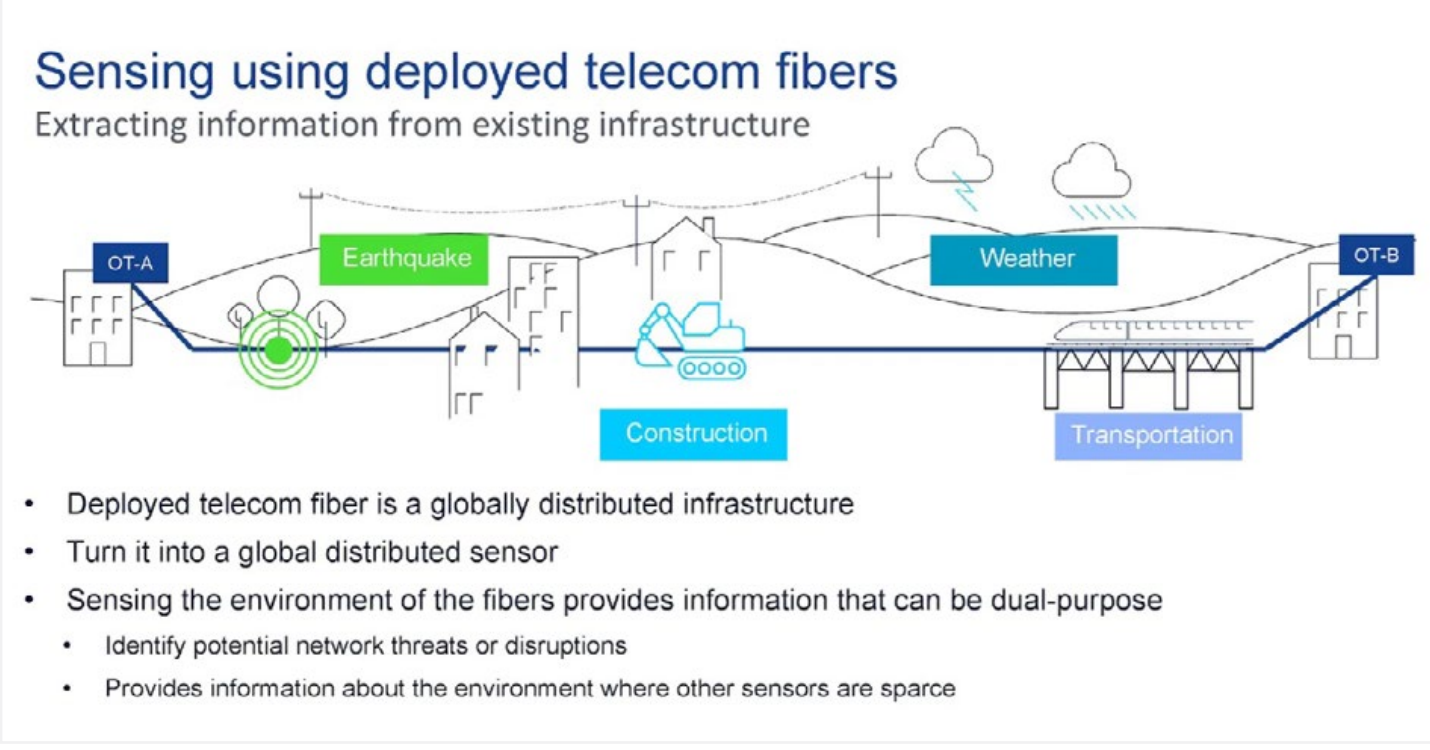


Sensing applications

Telecom fiber is both a critical infrastructure that needs to be constantly monitored and potentially a globally distributed sensor. Sensing the environment provides information that can be dual-purpose. It can help identify potential network threats or disruptions and provide information about an area where other sensors are sparce. A notable benefit of fiber optic sensing is the monitoring of the cable which quite often runs through harsh terrain and shifting seabed. For instance, coherent transponders can help monitor the entire cable infrastructure, keeping it safe from any signs of failure and optimizing capacity. Adverse weather phenomenon like a storm, an earthquake or construction work that can disrupt the fiber can be sensed with dedicated tools or directly at the transponder. The result is faster restoration, increased uptime and superior service quality. Repairing subsea cables is a dangerous and expensive affair. Early and accurate detection of interference, faults or damage is crucial for seamless service continuity. Advanced cable monitoring systems can help direct personnel to the exact location of the event for timely intervention. The cables also need to be protected from human activities such as trawling, anchoring and dredging. Sensors could detect the vibrations of fishing nets being dragged along the seabed. Trawling nets are a great threat to subsea cables, making up around 70 percent of all damage to the network. An early warning will give the cable operator time to radio the vessel and ask it to steer away from the cable. Fiber can even be used for environmental and scientific monitoring of earthquakes and tsunamis. The existing mesh of submarine cables could effectively be transformed into giant array of sensors that once linked to seismometer-based networks can substantially boost global earthquake monitoring at an affordable cost. In addition to that, fiber optic can monitor various oceanographic conditions like ocean currents and rockslides and help tracking mammals as well. When it comes to terrestrial cable sensing, DAS is widely used for monitoring of onshore pipelines including leak detection, external interference and ground movement monitoring. It can be employed for perimeter protection of critical assets and border control. By using existing optical cable networks in urban areas, DAS can provide sensing grids for high resolution traffic monitoring and road condition. Railway monitoring is another emerging area. With an optical cable along the track, DAS can supply information about moving trains, detect third party activity and locate rocks and landslides.

Opportunities and challenges

Having gauged the tremendous opportunities presented by fiber optic, one of the main challenges that the industry would need to address is that of managing data. Monitoring and sensing in modern optical networks can generate an unprecedented amount of information. The problem at hand would be to process the data deluge to extract meaningful signals. Proper tools, for instance Artificial Intelligence and Machine Learning (AI/ML), could be used to remove noise in raw sensory data and automatically detect and track events of interest. It must work dynamically as new threats emerge and ensure rigorous adherence to established rules that govern the decision-making process. Due to the massive proliferation of optical networks, monitoring and sensing can prove to be the next big thing. A technology that has a positive and meaningful impact, helping reduce and contain risks by early detection of fires, storms, and earthquakes. It could even play an active role in tackling the fallout of climate change by making communities smarter and safer.



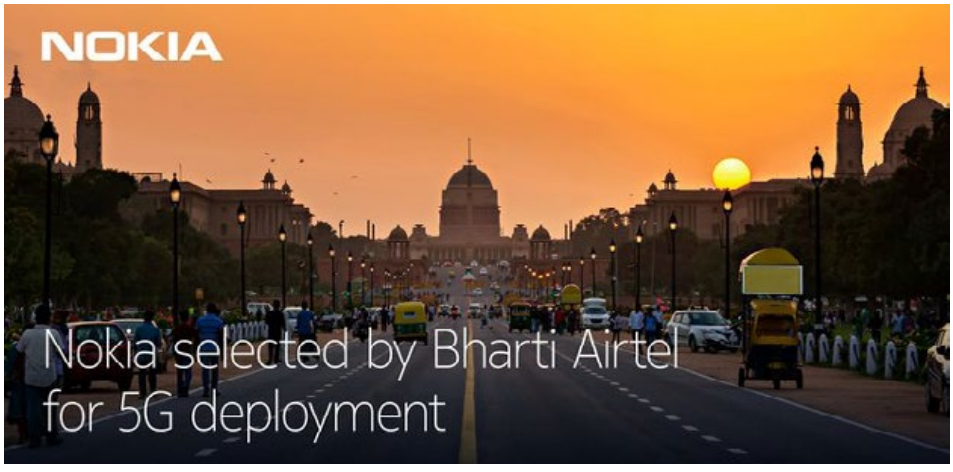
The telecom sector is rapidly ditching copper wire in favour of fiber optics

Nokia Selected by Orange Egypt to Modernize Network for Increased Reliability, Security and Operational Efficiencies

Nokia has announced that Orange Egypt has opted to modernize its existing Nokia SDM solution to support the operator's subscriber growth over the next five years. The enhancements to the SDM network include a total modernization of the solution with upgraded hardware and ongoing software releases. The new system will allow Orange Egypt's users to benefit from improved reliability and security, as well as enable Orange Egypt to enhance operational efficiency and meet the evolving capacity and service needs of its subscribers. Nokia's 3GPP-compliant SDM solution includes Nokia Registers – Home Subscriber Server, Home Location Register and One-NDS (Network Directory Server), plus 5G's Unified Data Management and Authorization Server Function. Together the components will allow Orange Egypt to better manage subscriber data across different technology networks. Nokia's SDM solution is deployed over three geographical sites and serves around 33 million mobile and fixed Orange Egypt subscribers. This includes subscribers of 2G, 3G, 4G, fixed services, data and voice, IP Multimedia Subsystem (IMS) with Voice over LTE (VoLTE) and Voice over WiFi (VoWiFi) services. The new upgraded system supports the upcoming launch of 5G services. Ayman Amiri, Chief Technology Officer at Orange Egypt, said: "The modernized, industry-leading Nokia SDM solution will help us better address the evolving needs of our customers. Building on our existing experience leveraging Nokia's SDM solution, we are looking forward to leveraging these upgrades as we consolidate our customer base across different technologies and move towards 5G." Adel Hani, Head of Orange MENA Customer Business Team at Nokia, said: "Our SDM solution is helping service providers across the world to cost-effectively manage data across several applications. We are thrilled that Orange Egypt will modernize Nokia's already-deployed SDM to gain newer efficiencies and capabilities. The extension of this deal is a reflection of our strong and enduring relationship with Orange Egypt."

Nokia Selected by Bharti Airtel for 5G Deployment

Nokia announced that it has secured a deal with leading telecom operator Bharti Airtel, for 5G radio access network (RAN) deployment. This multi-year deal follows the recently concluded 5G spectrum auctions and allocation of pan-India spectrum to Bharti Airtel, supporting their ambition to take India into the 5G era. Nokia will provide equipment from its market-leading AirScale portfolio, including modular and scalable baseband as well as high-capacity 5G massive MIMO radios. Gopal Vittal, MD & CEO of Bharti Airtel said, "We are pleased to continue our partnership with Nokia and take India into the 5G era. Airtel has always believed that the real leverage of 5G technology will come from the capacity to build an ecosystem across devices, networks, applications, and services. As mobile penetration increases across India, mobile telecom services will have a transformative impact across all sectors of the economy. Airtel is investing in the right areas and working with the right partners to serve our customers even better." Pekka Lundmark, President and CEO at Nokia said, "This landmark deal reinforces our long-standing partnership with Bharti Airtel. We are delighted that they have chosen Nokia's best-in-class AirScale baseband and radio portfolio to deliver superior 5G performance in one of the world's largest networks. I look forward to our continued successful long-term collaboration in this vital and dynamic market."



Nokia and SINET Deploy XGS-PON Network for Enterprises

Nokia announced that SINET, Cambodia's leading Internet Service Provider, has chosen Nokia to deploy its XGS Passive Optical Network (PON) solution to address the growing demand for ultra-high-speed broadband of the enterprises. Nokia's XGS-PON solution will be initially deployed in the capital city of Phnom Penh before being expanded to other cities and regions. Once deployed, SINET's future-ready network will be able to address the demand for more capacity and support new use cases, such as smart cities and 5G backhauling. The deployment, which includes the upgrade of the existing Nokia fiber access nodes, will be completed in 2022. Nokia's fiber access solution is powered by its Quillion chipset, which concurrently supports three generations of PON technologies, GPON, XGS-PON and 25G PON. It is 50% more energy efficient than the previous generation of chipsets, allowing the service providers to reduce operational expenditure. Mr. Diep Kong, Chief Technical Officer of SINET, said: "As the digital ecosystem becomes all-pervasive, enterprises need an exceptional network reliability along with ultra-high speed. We are committed to providing a world-class network experience to our business users so they are able to deliver the best possible services to their customers. We are already using Nokia's GPON solution and are confident that its field-proven XGS-PON solution will allow us to provide a differentiated experience to Cambodia's enterprises. Nokia has received the Type Approval of XGS-PON equipment from the Telecommunication Regulator of Cambodia, which proves us the quality of the solution and the readiness to deploy in the Cambodia market."Ajay Sharma, Head of Thailand and Cambodia at Nokia, said: “We are excited that SINET has reaffirmed its confidence in our solution. Our industry-leading XGS-PON solution will allow SINET to improve the overall speed and quality of broadband, which will help them grow their revenues and attract new customers. The enterprise users will benefit from an increase in network capacity, speed, and reliability."

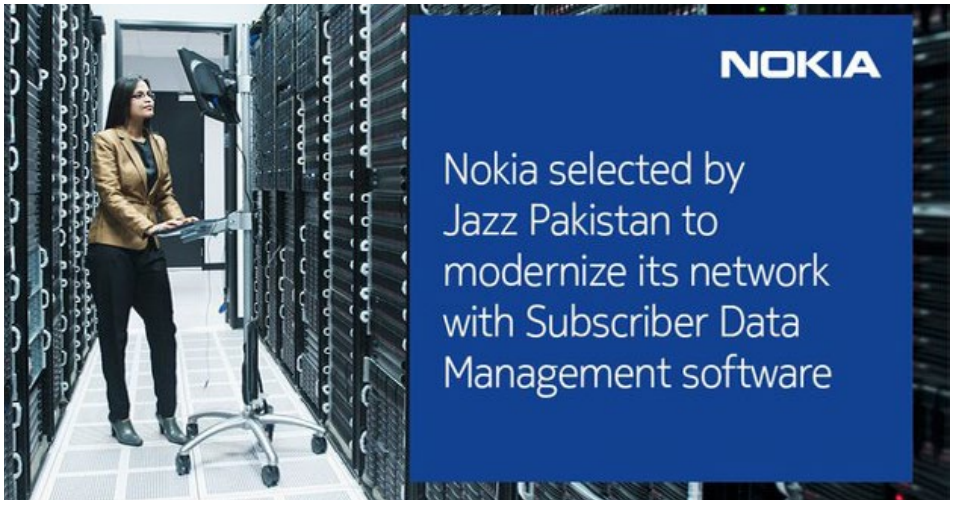
Nokia and Contela Successfully Conduct Korea's First-of-Its-Kind Private 5G Interoperability Trial

Nokia and Contela have announced the completion of Korea's first interoperability trial between SME (small and medium enterprise) Core and global Radio Access Networks (RAN) for private 5G at Nokia Korea's Private 5G Open Lab (e-Um 5G Open Lab). The interoperability trial enables Nokia and Contela to advance the private 5G market in Korea by providing a diverse selection of core networks for private 5G network solutions. Successful completion of the interoperability trial allows enterprises to opt between Nokia's industrial-grade Core or Contela's optimized core solution, depending on their unique requirements. The two companies will work closely to develop the private 5G ecosystem in the country. Nokia Customer Premise Equipment (CPE), RAN and Contela's core solutions were used to conduct the interoperability trial which demonstrates the harmony between Nokia and Contela's solutions. Earlier this year, Nokia and Contela had announced a collaboration to provide private 5G network solutions to Korea's public sector companies. Dr. Soon Park, CEO of Contela, said: "We are pleased with the successful completion of the interoperability trial using Nokia RAN and Contela core solution. The trial will further advance the growing private 5G ecosystem in the country and will provide new solutions and applications to our customers in line with their requirements. Nokia technical leadership coupled with our proven expertise will accelerate the development of South Korea's private 5G market." Josh Lee, Customer Team Head of Enterprise at Nokia, said: "The successful completion of the interoperability test enables us to offer diverse and advanced Industry 4.0 solutions for private 5G deployments. The interoperability between our RAN and Contela's core solution allows us to offer more options to the enterprises thus enabling them to leverage the benefits of 5G to gain a business edge. We are looking forward to inviting local players to our private 5G Open Lab for the development of the private 5G ecosystem in Korea."

PTCL, Nokia Trial 1Tbps Per Wavelength Upgrade

State-backed full-service provider Pakistan Telecommunication Company Limited (PTCL) has conducted its first field trial of 1Tbps transport capacity per wavelength. The test was conducted in collaboration with Finnish vendor Nokia and carried out in a live network environment, where PTCL's metro transport network was upgraded to 1Tbps per channel, improving capacity to 32Tbps per fiber. In a statement from the pair, the operator noted that the trial was based on Nokia's Photonic Service Engine Transport Technology, which the vendor says is designed to maximize network capacity and provide better customer experience. PTCL CTO Jafar Khalid said of the development: ‘We tested the scalability and evolution of our optical transport network by enhancing the existing capacity to 1-Terabit per channel, to facilitate the ever-growing data traffic demand of our corporate and consumer segments. Nokia's modern technology and expertise has helped us to test bandwidths up-to 1Tbps, that will help provide a superior customer experience and enable seamless future expansion of our transport network capacity across Pakistan.'

Nokia Subscriber Data Management Software Selected by Jazz to Drive New Customer Services and Experience



Nokia announced that Jazz, Pakistan's largest mobile operator, has selected Nokia's latest Subscriber Data Management (SDM) software to enhance HLR/HSS network resiliency and accelerate new product and services for Jazz customers. As part of a phased expansion and deployment strategy, the network will be gradually modernized to fully cloud-based SDM architecture by 2025. The modernization strategy will enable Jazz to deploy fully geographically redundant active networks in four data centers in Islamabad, Lahore, Karachi and Faisalabad to ensure network availability as a disaster recovery solution. The deployment, an extension of an existing collaboration, will help Jazz deliver its digital transformation-related ambitions by allowing auto-provisioning of devices and services at massive scale to accelerate Pakistan's digitalization. Nokia SDM's software will reduce the provisioning time for new subscribers, services and functionalities. The cloud transformation of the SDM network will allow Jazz to use network automation for zero-touch capacity scaling. In addition, Nokia NetAct will provide a consolidated view of multi-domain, multi-technology networks for ensuring the best network experience. Abdul Rehman Usmani, Vice President, Network at Jazz, said: "Being the largest digital mobile operator in Pakistan, Jazz is playing a key role in the country's digitalization journey. Our extended collaboration with Nokia will help us further improve the customer experience by ensuring network resilience and rapidly launch new consumer and business services. Nokia's industry-proven solution will help us towards readiness of any future technologies, while enhancing the growing needs of the existing networks." Imran Durrani, Head of Customer Team for Jazz at Nokia, said: "Nokia SDM's software will provide Jazz with a consolidated multi-technology network and enhance its digital services by allowing the operator to auto-provision new devices at scale. We look forward to expanding our longstanding relationship with Jazz for this crucial project as part of its network modernization transformation."

Nokia and Safaricom Complete FWA 5G Slicing Trial

Nokia has announced that it has successfully piloted 4G and 5G fixed wireless access (FWA) network slicing with Kenyan operator Safaricom on its live commercial network. The Finnish vendor claims that it is the first time that 4G/5G network slicing has been successfully achieved in Africa. The trial utilized a multi-vendor network environment and included RAN, transport and core as well as software upgrades to a range of Nokia's products and services. The successful trial demonstrates that Safaricom is now poised to support new types of enterprise network services, including fast lane internet access and application slicing. In addition, Nokia is enabling secured FWA slice connectivity to enterprise locations, as well as to private or public application clouds. The multi-vendor pilot, which took place in Kenya's Western Region, demonstrated a number of solutions including Nokia's AirScale 4G/5G base stations, the NetAct network management and assurance system and Nokia's FastMile 4G/5G CPE. James Maitai, Network Director of Safaricom, said: 'We are proud to have hosted Africa's first successful pilot of 4G/5G FWA slicing on our network, and look forward to tailoring our service offerings to individual customers and industries, to meet their needs for high speed connectivity precisely and without unnecessary cost. Nokia's expertise has been key to this success, and we anticipate many more strategic wins in this area as our business expands.'

Nokia Tests Mission-Critical Voice and Data on 4.9G/LTE Private Wireless Network for NCRTC's Phase 1

Nokia announced that it has successfully completed testing of voice and data call, over the world's first 4.9G/LTE private wireless network to support European Train Control System (ETCS) Level 2 Signalling, for phase 1 of NCRTC's Regional Rapid Transit System. The project, covering 82 km rail route with 25 stations between Delhi and Meerut, will be implemented in four stages and will be completed by 2025. 4.9G/LTE's ability to support advanced broadband applications makes it the technology of choice to support mission-critical voice signaling. This is a world first application of an LTE network that is being used along with ETCS Level 2 signaling to provide high-speed, high-reliability commuter service. In addition, ETCS Level 2 based system allows trains to report their precise location in real-time which will further help to send alerts to the commuters by sharing the trains' exact location and decrease the waiting time at the train stations. As part of the agreement, Nokia will provide Nokia Evolved Packet Core (EPC), Compact Mobile Unit (CMU), NetAct, Network Services Platform (NSP), installation and commissioning services and integration services. Nokia will also deliver Operation Control Center (OCC) and Back-up Control Center (BCC) to ensure seamless operations. Nokia is partnering with Alstom for implementing this private network. Thameem Kamaldeen, Signaling Director, at Alstom India, said: "We are pleased to work with Nokia on this exciting project for NCRTC to provide high-speed connectivity between New Delhi and Meerut. The initiative will significantly transform the region by opening new opportunities for citizens while providing a sustainable and safer travel option for them." Kamal Ballout, Head of Enterprise Solutions CHIMEA (China, India, Middle East and Africa) at Nokia, said: "We have worked closely with major railway operators to bring the benefits of private LTE connectivity and pave the way for the adoption and deployment of Future Railway Mobile Communication System (FRMCS). As India's trusted telecom vendor, we are thrilled to partner with NCRTC for the deployment of a high-speed LTE network between Meerut and New Delhi and are looking forward to building a world's first for NCRTC*." Nokia has deployed mission-critical networks to more than 2,200 leading enterprise customers in the transport, energy, large enterprise, manufacturing, webscale, and public sector segments around the globe. It has also extended its expertise to more than 485 large private wireless customers worldwide across an array of sectors and has been cited by numerous industry analysts as the leading provider of private wireless networking worldwide.

Nokia Takes Lead on German 6G Project

Finnish vendor Nokia teamed with 29 other industry, research and academic partners on a Germany-funded 6G research project, with plans to advance development through a focus on architecture and standardization. The 6G-Access, Network of Networks, Automation and Simplification (6G-ANNA) project is 70 per cent funded by the German Federal Ministry of Education and Research (BMBF). Nokia is the overall leader of the initiative, which is set to run over three years with a total budget of €38.4 million. BMBF indicated Nokia's rival Ericsson and Vodafone Germany are among the partners. 6G-ANNA also forms part of a wider national platform initiative. Nokia and partners stated they aim to design an "end-to-end 6G architecture", with plans to conduct proof of concept testing in areas including sub-networks, XR and "real-time digital twinning". Head of Nokia standards Peter Merz acknowledged the first 6G networks "are not expected to be commercially available before 2030", but noted 5G Advanced is "already laying the technical foundation" for future developments. Within the project, Nokia will collaborate with four academic 6G Hubs in Germany with more than 60 university chairs. "Beyond Germany, 6G-ANNA aims to interact with other major 6G flagship projects in Europe and the US to shape global" standards, the vendor stated. Nokia recently announced a collaboration with South Korea-based LG Uplus on 5G Advanced and 6G research projects.

Nokia and Google Trial Innovative Slicing Solution for Android Devices and 4G/5G Networks

Nokia and Google announced that they have successfully trialed innovative network slice selection functionality on 4G/5G networks using UE Route Selection Policy (URSP) technology and Google Pixel 6 (Pro) phones running Android 13. Once deployed, the solution will enable operators to provide new 5G network slicing services and enhance the customer application experience of devices with Android 13. Specifically, URSP capabilities enable a smartphone to connect to multiple network slices simultaneously via different enterprise and consumer applications depending on a subscriber's specific requirements. The trial, which took place at Nokia's network slicing development center in Tampere, Finland, also included LTE-5G New Radio slice interworking functionality. This will enable operators to maximally utilize existing network assets such as spectrum and coverage. URSP capabilities extend network slicing to new types of applications and use cases, allowing network slices to be tailored based on network performance, traffic routing, latency, and security. For example, an enterprise customer could send business-sensitive information using a secure and high-performing network slice while participating in a video call using another slice at the same time. Additionally, consumers could receive personalized network slicing services for example for cloud gaming or high-quality video streaming. The URSP-based network slicing solution is also compatible with Nokia's new 5G radio resource allocation mechanisms as well as slice continuity capabilities over 4G and 5G networks. The trial was conducted using Nokia's end-to-end 4G/5G network slicing product portfolio across RAN-transport-core as well as related control and management systems. The trial included 5G network slice selection and connectivity based on enterprise and consumer application categories as well as 5G NR-LTE slice interworking functionalities. Nokia is the industry leader in 4G/5G network slicing and was the first to demonstrate 4G/5G network slicing across RAN-Transport-Core with management and assurance. Nokia's network slicing solution supports all LTE, 5G NSA, and 5G SA devices, enabling mobile operators to utilize a huge device ecosystem and provide slice continuity over 4G and 5G. Nokia has carried out several live network deployments and trials with Nokia's global customer base including deployments of new slicing capabilities such as Edge Slicing in Virtual Private Networks, LTE-NSA-SA end-to-end network slicing, Fixed Wireless Access slicing, Sliced Private Wireless as well as Slice Management Automation and Orchestration. Ari Kynäslahti, Head of Strategy and Technology at Nokia Mobile Networks, said: "New application-based URSP slicing solutions widen operator's 5G network business opportunities. We are excited to develop and test new standards-based URSP technologies with Android that will ensure that our customers can provide leading-edge enterprise and consumer services using Android devices and Nokia's 4G/5G networks."

Nokia and Telekom Serbia/MTEL Verify 600Gbit/s Optical Network Over 600Km

Nokia announced the successful testing of a 600Gbit/s line rate on Telekom Serbia and MTEL's optical transport network over a distance of 600km between Banja Luka and Belgrade. The test utilized Nokia 1830 Photonic Service Switch (PSS), powered by its PSE-Vs chipset, and laid the foundation for future growth to meet the needs of low latency, high-capacity traffic demands enabling the transport of 100GE and 400GE services In addition to long range city to city connections, Telekom Serbia will deploy the 1830 PSS family equipment (PSS-16 and PSS-8x) in two new regional rings to provide next generation, highly scalable networks based on wavelength division multiplexing (WDM) for the needs of its residential and business customers. Nicolas Almendro, VP, Europe Nokia Optical Networks, said: "We are proud of our ongoing partnership with Telekom Serbia and support the group in executing its strategy of maintaining market leadership in telecommunication services and content in Balkan region." CTO, Telekom Serbia, Djordje Marovic, CTO M-Tel Milan Aleksijevic said: "We are continuing to invest into the latest

WDM technology to serve our customers with more demanding traffic growth, low latency requirements and agility for their traffic patterns." In the trial over MTEL-Telekom Serbia live traffic network, Nokia demonstrated 600Gbit/s line performance over a 600km path consisting in 6 spans, through C-F ROADM nodes. By operating over spectrally efficient 100GHz WDM channels, Telekom Serbia and MTEL will be able to maximize capacity, performance, and operational efficiency while lowering network TCO.

Nokia Partners with Indian Institute of Science to Establish Networked Robotics Center of Excellence

Nokia and the Indian Institute of Science (IISc) today announced the opening of the Nokia Center of Excellence (CoE) in Networked Robotics at the IISc Bengaluru. The CoE will promote inter-disciplinary research involving robotics and advanced communication technologies in 5G and Artificial Intelligence (AI). The CoE will also develop use cases across industrial automation, agriculture and disaster management. The center will facilitate engagement and cooperation between academia, start-ups and industry ecosystem partners to research and develop these use cases. The research projects undertaken by the CoE will include the design of advanced robotics, AI and automation solutions built upon next generation telecom networks and their applications for solving societally relevant problems. The agreement for setting up the CoE in Networked Robotics was concluded in August 2020, and since then a core group has worked tirelessly to set up and equip the center. Nokia will fund the CoE for three consecutive years in order to sustain the first phase of the partnership between Nokia and IISc. Nishant Batra, Chief Strategy and Technology Officer at Nokia, said: "We want India to drive global innovation in an era of convergence where a few years from now, extended reality (XR) and digital-physical fusion will allow us to create, collaborate and communicate in unprecedented ways. There is substantial untapped intellectual capability and competence in India, and our collaboration with a prestigious institution like IISc will enable exciting possibilities for industry and society." Professor Govindan Rangarajan, Director at IISc, said: "Next generation communication technologies like 5G and 6G will contribute enormously to the growth of India's economy. Our collaboration with a world-class company like Nokia will enable us to explore new frontiers for advanced technology research to benefit society as well as provide state-of-the-art training to our students to enable them to become technology leaders in the coming decades." From launching and enabling rapid growth of 2G/GSM technology in India in early 2000 and bringing high-quality 3G services in 2011 to pioneering 4G/LTE technology in 2012 and now preparing the nation for 5G, Nokia is an integral part of India's remarkable progress in technology and connectivity over last 22 years. Nokia's active CSR programs in India align with Nokia's key themes of Corporate Community Investment and Section 135 and Schedule VII of the Companies Act 2013 and Companies (CSR Policy) Rules 2014. Nokia has invested a cumulative amount of over 150 crores INR in CSR efforts in India so far.

Nokia Research Reveals 5G Subscriptions in MEA to Exceed 250 Million by 2026

Nokia announced research that forecasts 5G subscriptions are expected to reach 263 million in the Middle East and Africa (MEA) region by 2026. The 5G subscription growth will primarily be in Gulf Cooperation Council (GCC) countries, including Saudi Arabia, the UAE, Qatar, Oman, Kuwait and Bahrain. Additionally, subscribers in South Africa, Nigeria and North African countries will increase adoption following the release of new spectrum. This trend is triggered by the increasing use of high-bandwidth consumer applications and industrial use cases. The Nokia MEA Broadband Index Report - I* provides valuable insight, data and analysis on mobile broadband subscribers, coverage, ARPU and traffic growth in the MEA region, as well its respective sub-regions: GCC, Southern Africa, North Africa, Middle East, and Central East West Africa. The report has been created based on Nokia's intelligence, as well as data from third-party sources, GlobalData and Tutela. In GCC countries, 5G technology will dominate with the subscriber base reaching 64 percent of the total and with data traffic likely to surpass 70 percent by 2026, according to the study. In Africa, 5G technology adoption will grow steadily, driven by the evolution of the device ecosystem and 5G spectrum allocations in many countries. While 4G subscribers in the Southern Africa region are projected to reach 105 million (58 percent of total subscribers) by 2026, 5G will contribute more than one-fifth of data traffic in the same time-frame. North African operators have seen a high demand for mobile broadband and the region is expected to have a 20 percent increase in total subscribers by 2026, compared to 2022. In Central East West Africa, today more than 60 percent of the total data traffic is carried by 4G. This traffic is expected to grow four times over the next four years. At the same time, 5G subscriptions are expected to account for nearly 10 percent of the total mobile subscribers in this period. The study also reveals that 5G and 4G together are expected to drive more than 90 percent of data traffic in MEA. Total data traffic is expected to increase significantly in the next four years with a compound annual growth rate of 35 percent. Mikko Lavanti, Head of Mobile Networks, Nokia MEA, said, “Globally, the pace of 5G network rollouts has surpassed 4G/LTE networks. Two years after the first LTE launch there were only 25 million subscriptions across 60 networks, while two years after the first 5G launch, 340 million subscriptions were registered across 155 networks. Similarly, in MEA, our MEA Broadband Index Report finds 40 percent year-on-year growth in 4G data traffic but a huge 350 percent year-on-year growth in 5G data traffic in 2021 alone. This trend in the region clearly indicates that there is a pressing need for the adoption and expansion of 5G networks across the region.” “Ultra-low latency and ultra-fast 5G networks can support a plethora of unimaginable use cases such as augmented and virtual reality and uncover new potential in digitizing sectors such as energy, transport, healthcare, manufacturing and education while providing amazing experiences to individual users."

Nokia Radio Technology to Enable AST SpaceMobile's Direct-to-Cell Phone Connectivity from Space

Nokia announced that they have signed a five-year 5G deal with AST SpaceMobile, Inc. (“AST SpaceMobile”) (NASDAQ: ASTS) – the company building the first and only space-based cellular broadband network accessible directly by standard 4G or 5G mobile devices. Under the deal, Nokia and AST SpaceMobile will work to achieve their joint ambition to expand universal coverage and connect underserved communities around the world. The launch of AST SpaceMobile's BlueWalker 3 test satellite later this year will kick off global testing with mobile network operators on six continents. AST SpaceMobile's mission is to eliminate the connectivity gaps faced by over five billion mobile subscribers worldwide and to bring cellular broadband to approximately half of the world's population who remain unconnected. Their approach will mean that subscribers outside the reach of cellular coverage could have access to broadband speeds without having to invest in specialized hardware and be able to roam from land networks to space networks for the first time. Through its mobile network operator relationships, AST SpaceMobile has entered into agreements and understandings with mobile network operators which collectively service over 1.8 billion cellular customers. Nokia's AirScale Single RAN equipment aims to enable AST SpaceMobile in providing mobile services to new and existing subscribers in regions currently not served by terrestrial communication networks. This includes connecting devices globally on land, at sea, or in flight. Nokia will provide equipment from its comprehensive, energy-efficient AirScale portfolio including its AirScale base stations powered by its latest generation of Nokia's ReefShark System-on-Chip (SoC) chipsets. AST SpaceMobile will benefit from Nokia's modular baseband plug-in cards which add capacity where it is needed offering flexibility and efficiency. Nokia will also provide its NetAct solution for network management and seamless daily network operations as well as optimization and technical support services. “Connectivity should be considered an essential service like water, electricity, or gas. Everyone should be able to have

access to universal broadband services that will ensure that no one is left behind," said Tommi Uitto, President of Mobile Networks at Nokia. "Nokia has a long history of delivering connectivity solutions that have had a major and positive impact on society. We have worked closely with AST SpaceMobile on this important initiative for two years which seeks to provide crucial connectivity from space to underserved communities around the world. We are of course proud our technology is playing an important role in underpinning the networks." AST SpaceMobile plans to launch its BlueWalker 3 satellite for testing in early to mid-September from Cape Canaveral, Florida. BlueWalker 3 is a low Earth orbiting satellite and has an aperture of approximately 64 square meters (693 square feet), which is designed to communicate directly with cellular devices via 3GPP standard frequencies. Ultimately, AST SpaceMobile is aiming to deploy approximately 100 satellites to achieve substantial global mobile coverage. "With the integration of Nokia's AirScale system, AST SpaceMobile and Nokia are taking an important step toward closing connectivity gaps all over the world," said Scott Wisniewski, Chief Strategy Officer at AST SpaceMobile. "Nokia is supporting us with dozens of engineers and development professionals, including leading architecture research experts at Bell Labs, the world-renowned industrial research arm of Nokia. In the coming months, we are scheduled to launch our BlueWalker 3 test satellite into low Earth orbit, which has a 64-square meter phased array antenna designed for direct-to-cell connectivity. With this satellite, we plan to conduct testing all over the world with leading mobile network operators, leveraging Nokia's technology solutions on the ground." Nokia is committed to equitable opportunity for all and access to education, healthcare, jobs, and community digital services. Nokia supports the 2025 targets set by The Broadband Commission for Sustainable Development that aims to 'connect the other half' in the next five years. They are involved in several projects underway around the world including in El Salvador and Kenya. These public/private initiatives are designed to bring public services such as schools and hospitals online. They are intended to vastly improve internet access and create the foundations that will enable everyone to participate in the digital economy.

SES to Power Innovative, Immersive Experiences Onboard Leading Family Cruise Lines Fleet with O3b mPOWER

SES, the world's leading content connectivity satellite service provider, will be providing ground-breaking high-speed satellite-based connectivity services to the newest landmark ship of a leading family cruise line, the company announced today. The cruise line existing fleet will also transition its connectivity to SES's second-generation medium earth orbit (MEO) system O3b mPOWER, alongside installing the service onto its newbuild program. The high-performance connectivity service onboard will first be available via SES's O3b Medium Earth Orbit (MEO) constellation and will subsequently migrate and expand to SES's O3b mPOWER communication system. This connectivity will be augmented by SES's geostationary satellite fleet and ground-based infrastructure to provide high-bandwidth redundancy and unparalleled reliability throughout the voyage. The new agreement will help enable a seamless and hassle-free internet connectivity experience for guests who can unwind in complete luxury without worrying about their family's consuming large amounts of data at considerable expense. Passengers can purchase new Unlimited Internet access plans by leveraging SES's O3b mPOWER network and enjoy unmatched connectivity whilst cruising. The low-latency connectivity network which will be delivered by SES's O3b mPOWER system is also set to enable innovative connected technologies, including a first-of-its-kind immersive augmented reality experience for guests. It will also power wearable technology for families, which provides children secure and safe access to amazing experiences while parents recline at the pool. Simon Maher, Vice President of Global Sales, Cruise Maritime Services at SES, said, "SES is privileged to be selected as the most innovative technology connectivity partner for both the transition of the current fleet of Cruise Ships from the legacy provider to SES but also supporting the cruise line's fleet expansion plans. We are passionate about amazing, innovative experiences that push the boundaries of what people think is possible. As the only company to operate a commercially successful medium earth orbit constellations at unmatched scale, SES is uniquely positioned to offer the most reliable, best-performing high-speed connectivity at sea that helps make incredible and innovative experiences a reality."

SES Closes US$450 Million Acquisition of DRS' Satellite Communications Business

Communications satellite operator SES announced Aug. 1 it completed the acquisition of DRS Global Enterprise Solutions, a business acquired from Leonardo DRS for $450 million. DRS GES will be part of SES Government Solutions, based in Reston, Virginia. The acquisition was announced in March. Before it was sold to SES, DRS GES was a business unit of defense contractor Leonardo DRS and one of a handful of network integrators that provide managed satcom services to the Defense Department and other government agencies. The Pentagon relies on integrators to stitch together networks from multiple vendors. SES, headquartered in Luxembourg, operates a fleet of more than 70 geosynchronous and medium Earth orbit satellites. The company expects to leverage the DRS customer base to grow its U.S. defense and government business. SES said it plans to serve "multi-orbit satellite communications needs of the U.S. government and supporting missions anywhere on land, at sea or in the air." Following this acquisition, the U.S. government is expected to become "SES's largest data business segment in terms of revenue," said the company. DRS as an integrator was vendor agnostic and provided satcom services from multiple operators of satellites in geostationary, medium and low Earth orbits. SES said the new business will offer "multi-operator network solutions" but particularly focus on SES's soon-to-be launched O3b mPower constellation which the company designed with military and government customers in mind. As is required for U.S. government and defense contractors owned by a foreign parent company, the combined SES and DRS business will operate under the direction of the SES GS proxy board of directors. The combined business is led by former DRS senior vice president David Fields, who assumed responsibilities Aug. 1. He succeeds Pete Hoene as president and CEO of SES Government Solutions. Hoene is retiring after 11 years at the company. Billy Bingham, a retired U.S. Air Force brigadier general, was named chairman of the SES GS proxy board.

ARSAT Will Use SES-17 to Expand Satellite Broadband Connectivity in Argentina

ARSAT, Argentina's leading telecommunications company, will take advantage of SES's recently launched high performance geostationary (GEO) satellite, SES-17, to deliver high-quality connectivity services. "We want to reach all areas of the country," SES and ARSAT announced today. The multi-year agreement will allow ARSAT to provide reliable broadband satellite services starting in mid-2022. By leveraging the capacity of SES-17, ARSAT will improve access to affordable and high-quality satellite broadband services for business and residential applications. In addition, ARSAT will use SES-17 to accelerate internet connectivity in public schools throughout the country in the framework of an agreement signed with the Ministry of Education. Operating at 67 degrees West, SES-17 is the only high-performance Ka-band satellite currently operating in the Americas region with full coverage over the Argentine mainland. The satellite's 200 fully flexible beams also make it ideal for bringing quality connectivity services across underserved communities across the country. "It is widely recognized that improved connectivity services change people's lives and transform the way industries operate, bringing far-reaching economic and social benefits. This agreement will allow us to continue providing high performance broadband services to improve digital inclusion throughout our country," said Matias Tombolini, president at ARSAT. "ARSAT and SES have enjoyed a fruitful and strategic relationship for more than a decade. We are delighted to support ARSAT in its mission to generate a positive social impact, connecting unserved and underserved regions in Argentina and supporting the needs of young people throughout the country," said Omar Trujillo, Vice President of Networks Sales for Americas at SES. "We're delighted to further strengthen the cooperation between ARSAT and SES and look forward to working together for decades to come."

Simmons & Simmons Responds to HMRC's Consultation

The scope of the investment manager exemption (IME), and the extent to which it may encompass certain forms of cryptoasset, has been a regular subject of dialogue in recent years. The IME is an important factor in the UK being an attractive jurisdiction from which to manage alternative investment funds. However, the current lack of clarity regarding the treatment of cryptoassets under the IME has caused and is causing investment managers to consider other jurisdictions as a location from which to deploy investment strategies involving cryptoassets, where those jurisdictions may provide greater certainty of treatment for funds and their investors. Therefore, HMRC's launch of its consultation is highly welcomed, particularly in an environment where many tax authorities worldwide in jurisdictions where fund managers have traditionally been domiciled are struggling both to:

- accommodate managers who seek to invest in digital assets on behalf of their fund and other clients, and
- provide clarity on how existing tax rules, such as the IME in the UK or similar measures such as the "trading safe harbors" in the US, apply to such activities.

Simmons & Simmons response to the consultation is supportive of the principles and purpose of the consultation to include cryptoassets within the scope of the UK's IME and we consider the proposed extension would meet a pressing need for many new and established alternative investment fund managers.

stc Bahrain Becomes the First Telecom Operator in the MENA Region to Announce Plans to Develop the Foundation for 5.5G Network

stc Bahrain has taken a new step in achieving its vision of becoming a world-class digital enabler, after its achievement of launching 5G network across the Kingdom of Bahrain. The telecom operator announced plans to build the foundation for a 5.5G network, in partnership with Huawei, making it the first company that will adapt this network, not just in Bahrain, but the Middle East region as a whole The announcement comes as part of stc Bahrain's strategy to establish and develop the infrastructure to power the next version of 5G (5.5G) within the next three years, reflecting stc Bahrain's commitment to invest in the latest technology and keep up with global trends. stc Bahrain's current 5G network covers all areas of the Kingdom and supports 2CC (two cell carriers), enhancing stc Bahrain's network performance and contributing to the Kingdom's Vision 2030 to build a world-class infrastructure that links Bahrain to the global economy. The milestone was announced during the quarterly board meeting, where Eng. Nezar Banabeela, Chief Executive Officer of stc Bahrain, presented the company's vision around the evolution of 5G and its ambitious plans to start building the foundation of a 5.5G network, commenting: "stc Bahrain is committed to investing in network infrastructure that positions Bahrain as a global telecommunication and ICT leader. We are incredibly proud to be at the forefront of building Bahrain's future advanced network connectivity services, paving the way for innovation, and further digital transformation across the Kingdom. He added: . "As more intelligent applications and demands emerge, we want the infrastructure to be able to support a thriving digital ecosystem and setting the foundation of 5.5G, is critical to that future." The 5.5G network, is an improvement to the 5G network, which contains features that will transform the telecommunications field. According to stc Bahrain CEO, the 5.5G network speed will be ten times faster than 5G network, and the applications that it will support will achieve more than improved connectivity, it will support the "Internet of Things" in a way that has not been done in the past. The 5.5G network will also create opportunities and pave the way to use the latest artificial intelligence technology and will improve data storage capabilities on a global scale in addition to empowering green technology, nurturing the environment and reducing energy consumption. stc Bahrain has identified five business capabilities which will be focused to achieve the ambition of the target network: service penetration, efficiency creativity, resource integration, value

competitiveness, and social contribution. As part of phase one of the vision, major network revamp and upgrades have been initiated in all network domains including wireless, Datacom, Transmission, Core, IT and Digital Infrastructure. With the completion of phase one of the project, the stc network will be upgraded and evolved to the very latest telecom standards to make the network foundation ready for 5.5G capability (also known as 5G-Advance as per 3GPP standard). At the conclusion of the program, network capability will increase from 3Gbps to 10Gbps. stc Bahrain's implementation of Artificial Intelligence and digital tools to optimize network management will position the company as a regional innovator and leader in terms of network operations.

KD 153.8 million stc's Revenue for the First Half of 2022 with KD 15 Net Profit

Kuwait Telecommunications Company (stc), a world-class digital leader providing innovative services and platforms to customers and enabling the digital transformation in Kuwait, announced its financial results for the six-month period ended 30 June 2022, highlighting the most significant achievements, financial and operational performance in addition to the social initiatives made by the company during the first half of 2022. Commenting on the announcements of these results, Dr. Mahmoud Ahmed Abdulrahman, stc's Chairman, stated: "stc's outlook with regards to the increased demand on the ICT integrated technologies and digital solutions is considered one of the key factors for executing Company's corporate strategy of expanding its services in the B2B sector. Accordingly, stc has completed its acquisition on all the share capital of E-portal and its subsidiaries in the second quarter of 2022. This acquisition demonstrates stc's commitment to grow its position in the ICT field by providing the best in class integrated technical solutions to its individuals and enterprise customers. With an increased focus on the ICT services, stc was able to capture new streams of revenue driven by the latest extensive demand on the digital communications and information technology services". He pointed out: "stc is currently developing its operational strategy aimed at adding value through utilizing the capabilities of its subsidiaries specialized in providing suitable solutions to the enterprise sector in Kuwait. stc is; therefore, keen to maintain its position as a pioneer in the ICT services and the enterprise solutions". Dr. Abdulrahman noted that during Q2, stc managed to strengthen its extensive corporate social responsibility (CSR) program by launching and contributing to various initiatives that aimed to empower the community. The Company collaborated with different government entities, as well as companies within the private sector, in line with its CSR program that aims to create a larger

impact within the community. Whereby, stc launched a series of campaigns and initiatives that actively engaged with members within the community while spreading awareness on various causes. Throughout these campaigns, stc primarily focused on tackling key issues within the areas of health, entrepreneurship, the environment, as well as sports and education. As a pioneer in Kuwait's telecom and digital solutions sector, stc will continue to contribute through its rich, diverse, and widespread program with the sole objective of creating a positive and sustainable impact in the local community. This approach falls in line with stc's vision to back and support the community by implementing initiatives and events that align with its robust social responsibility framework. Commenting on stc's financial position as of June 30, 2022, Dr. Abdulrahman said: "stc's total assets reached KD 424.1 mn by the end of June 2022, while total shareholders' equity increased by 7% reaching KD 222.3 mn. Moreover, stc has a strong solvency position among its peers in the Middle East". Commenting on stc's achievements during the first half of 2022, Eng. Maziad Bin Nasser Al Harbi, stc's CEO stated: "In the first half of 2022, stc was able to enhance its financial and operational performance, as well as improve its customer service with the dedication and commitment of its employees to implement the Company's digital transformation strategy with the highest quality. In this regard, stc was also capable to provide the most efficient service delivery within the telecommunications and information technology sector. Al-Harbi added: "In the first half of 2022, stc has successfully increased its share capital to reach KD 99.9 million through distributing 100% bonus shares to its shareholders. This decision came from stc's positive outlook on creating an added value to its shareholders and place their interest on its top priorities. In this regard, stc's management ensures developing long term financial policy to balance between its operational and financial performance that would positively reflect on its solvency and enhance its market position as a leader in the telecom industry and a pioneer in the digital transformation".

stc Bahrain, First Telecom Operator in Bahrain to Offer Seamless Cloud-Based Cybersecurity Protection for SMEs

stc Bahrain, a world-class digital enabler, is the first telecom operator in Bahrain to secure its network through a cloud-based cybersecurity solution, launched to protect business clients from hacker attacks, expanding its product portfolio and setting new benchmarks. Branded as "Web Protect", the solution launched today for business customers of all sizes in Bahrain predominantly targeting SMEs. With no additional hardware or software installations requiring at customer end, this will make sure customers and their businesses are safe from cyber threats such as malware, phishing and botnets and ransomware attacks. Benefitting SME's and business customers, stc Bahrain is offering Web Protect bundled with Postpaid Voice, 5G and fiber broadband. Enabling SMEs to surf the internet safely by blocking malicious websites or contents automatically acting as the first line of defence. Web Protect also ensures customers safety by using an advanced threat intelligence platform that scans all users' internet traffic and denies access to false websites set up by hackers that either steal payment information or install viruses. This is achieved by partnering with one of top global cyber threat intelligence platform service providers with team of world-class engineers, mathematicians, and security researchers actively monitor the threat landscape, so stc Bahrain business customers continue to stay one step ahead of bad actors. Talking about Web Protect, Eng. Nezar Banabeela, stc CEO said, "The increasing number of cyber-attacks against businesses has put companies on high alert and fueled demand for cyber security cover, specifically amongst SMEs. It's crucial to integrate cybersecurity into their digital environments, be more proactive in guiding the insured and seek comprehensive support in risk management given their low-security budget, lack of cyber skills, and the rapidly changing and diverse nature of tech and their business." Our stc Web Protect delivers on this, built on Cyber Security innovations that support SMEs in understanding their security risks. In line with our business vision to introduce a diverse range of Cyber Security products and services that align with the rapidly changing nature of cyber-threats and provide protection for potential threats.

strategy&

Strategy& 'eReadiness Study 2022'

Recommended actions for OEMs to tap the full potential of the electric vehicle market

As OEMs are challenged with the lasting impact of the Covid-19 pandemic and more recently, the effects induced by the war in Ukraine, they need to re-define their market approach for the electrification of vehicles to maximize the return on investments. In the third edition of the pan-European eReadiness study, we capture market perspectives and help OEMs identify the most viable options to ensure short-term commercial effectiveness. We grouped the respondents of our consumer research sample into three clusters:

- The share of EV owners continued to grow as last year, reaching 6% of the panel (2021: 4%). They are mainly high-income, middle-aged males living in city centers with access to private parking spaces
- With 55% of the surveyed consumers disclosing an intention to buy an EV in the next two years, the number of EV prospects has also increased strongly. Three of the six personas identified, have the greatest intention of buying an EV and represent 40% of the demand in the next 2 years
- 31% of the panel represent EV sceptics who are predominantly women with a lower disposable income than prospects and are about 10 years older than prospects

With regard to sales, 10% of EVs are currently purchased online. Yet, 55% of consumers would buy their next vehicle online driven by convenience and price transparency. Moreover, charging infrastructures are in demand, with 57% of consumers buying solution bundles together with the vehicle, and an additional 14% purchasing private charging infrastructures independently after the vehicle.

Tech Mahindra Partners with FireCompass to Launch Continuous Automated Red Teaming Assessment (CARTA) for Large Enterprises

Tech Mahindra, a leading provider of digital transformation, consulting, and business re-engineering services and solutions, today announced a strategic partnership with FireCompass, a leader in Autonomous Red Teaming and External Attack Surface Management. The partnership will launch CARTA-as-a-service to help enterprises discover cyber-vulnerabilities and secure business-critical assets against cyber-attacks. With Tech Mahindra's CARTA-as-a-service the customers will be able to address risks and mitigate vulnerabilities before they can be identified and exploited by an attacker. CARTA provides an end-to-end solution that allows continuous and automated discovery of the digital attack surface. With the help of CARTA, Tech Mahindra's customers will be able to defend their critical assets against advanced adversaries by identifying attack surfaces and paths which can cause the most damage to an enterprise. Kunal Purohit, Chief Digital Services Officer, Tech Mahindra, said, "In today's phygitally connected world, guarding the cyber frontier has become imperative. It is no longer enough to do occasional or manual penetration testing to prevent revenue loss caused by cyber-breach. There is a pressing need for holistic and advanced cyber-defense solutions to safe-guard business critical data. The partnership with FireCompass will assist our customers with continuous security risk assessments and maintaining up-to-date security postures. The smart automation offering can be used by any kind of customer, in a wide range of industries, to thoroughly assess and strengthen their cybersecurity strategies." Traditionally, most organizations conduct security testing a few times a year against a partial list of known digital assets, leaving out unknown or forgotten technologies. To address this, Tech Mahindra and FireCompass will join forces to offer global enterprises a system that automatically understands the vulnerabilities, determines the method of exploitation, and launches safe attacks which mimic a real-world threat. CARTA identifies attack paths that conventional tools miss out on. The game-changing approach will also provide

Tech Mahindra's customers with continuous and holistic visibility of the security posture of their enterprise and give them the information needed to protect against common attack scenarios. Bikash Barai, Co-Founder, FireCompass said, "The volume of attacks on enterprises is increasing by the day and occasional or manual Red Teaming is no longer enough. At FireCompass, our vision is to help organizations continuously discover and test their attack surface using the same methods as that of attackers. We are delighted to partner with Tech Mahindra, the leading provider of digital transformation solutions, to help customers to continuously discover and test their attack surface." The new partnership with FireCompass further strengthens Tech Mahindra's market position and ease of service to customers that expect nothing less than world-class cybersecurity solutions. The partnership also underlines the company's focus on digital growth, under the NXT. NOW™ framework, which is focused on leveraging next-generation technologies to deliver disruptive solutions today, further enable digital transformation, and meet the evolving and dynamic needs of its customers.

Tech Mahindra Partners with ColorTokens and SSIC to Launch Strategic Cyber Insights, Powered by X-Analytics®

Tech Mahindra, a leading provider of digital transformation, consulting and business reengineering services and solutions, announced the launch of its Strategic Cyber Insights, Powered by X-Analytics® - a strategic cyber risk advisory service. Through this new service, Tech Mahindra will break new ground for enterprises that embrace digital transformation or leverage technology to solve complex problems to future-proof business operations incorporating cyber security at the optimum level. Tech Mahindra has partnered with ColorTokens to deliver advanced Zero Trust cybersecurity solutions, and risk management services leveraging ColorTokens' partnership with SSIC to quantify, manage and track enterprise risk. In collaboration with ColorTokens and Secure Systems Innovation Corporation (SSIC), Tech Mahindra's Strategic Cyber Insights, Powered by X-Analytics® presents cyber analytics insights to help effectively mitigate threats and ensure organizations have the level of security dictated by their business. X-Analytics® leverages advanced financial cyber risk analytics enabling businesses navigate the uncertainty of cyber risk with confidence and clarity. Kunal Purohit, Chief Digital Services Officer, Tech Mahindra, said, "Cyber Security addresses a serious threat that will remain a risk for the next decade. For businesses, assurance and insurance are vital as every breach could cost millions of dollars and loss of critical data. Evaluating cyber security decisions for successful business outcomes is a key component to modern business planning. With Tech Mahindra's Strategic Cyber Insights, Powered by X-Analytics®, we are empowering organizations to

align their cyber security efforts with business objectives." Tech Mahindra Strategic Cyber Insights will enable enterprises to stay ahead of the potential cyber-attacks and secure their positions in advance. The services provided will be customized to the organizations' security controls and risk postures to proactively eliminate cyber risk which are likely to cause major financial impact and disruption. Strategic cyber insights bring the size, scale, and expertise of Tech Mahindra along with market-leading X-Analytics® cyber risk decision guiding application to truly help companies understand and financially manage their organizational cyber risk. Raja Ukil, SVP Global Markets and Partnerships, ColorTokens, said, "Traditional risk management platforms are ineffective and pose the potential threat of exposing organizations to escalating threats. Businesses need a robust approach to risk quantification and management, especially in the complex IT landscape. Our advanced cybersecurity solutions have helped organizations augment their capabilities to protect themselves and their customers better. And, we are thrilled about the launch of Tech Mahindra's Cyber Insights powered by our partner SSIC's X-Analytics® to quantify, manage and track risk for the modern enterprise." Kevin Richards, President, SSIC Cyber Risk Services, said, "With the launch of Tech Mahindra's Strategic Cyber Insights, powered by X-Analytics®, global customers will have access to the next generation of cyber risk analytics. Leveraging the latest in cyber economics, Tech Mahindra Strategic Cyber Insights provides business leaders with understandable and actionable financial insights relating to their organizational cyber risk. By leveraging Tech Mahindra's world class capabilities, organizations will be able to initiate effective strategies that align cyber risk management with business goals." Tech Mahindra believes in

DigitALL philosophy for comprehensive business transformation. Digital technologies catalyze the transformations – they humanize businesses by helping them think, sense, connect, communicate, secure, and act better than before. As part of NXT.NOWTM framework, which aims to enhance 'Human Centric Experience', Tech Mahindra focuses on investing in emerging technologies and solutions that enable digital transformation and meet the evolving needs of the customer.

Tech Mahindra Announces Strategic Partnership with Soroco to Establish a Large Task Mining Center of Excellence

Tech Mahindra, a leading provider of digital transformation, consulting, and business re-engineering services & solutions, announced a strategic partnership with Soroco, the world's first work graph company. The partnership will establish a state-of-the-art CoE (Center of Excellence) to deliver an accelerated transformation program for business process management, managed services backed by intelligent automation process and task mining. Tech Mahindra's CoE will be located in New Delhi to support the evolving digital transformation needs of customers right from Discovery to Realization. Together, Soroco and Tech Mahindra will support customers to develop a culture of continuous improvement, industry best practices, assets, and accelerators to provide a structured approach on the ground. While the Soroco platform Scout will focus on task mining led solutions, Tech Mahindra will assist with its implementation and managed services around task mining practices. The CoE for task mining will further aid this partnership to cater to global clients across industries, such as telecom, banking, manufacturing, automotive, retail & consumer packaged goods. Birendra Sen, Business Head, Business Process Services, Tech Mahindra, said, "New technology shift, consumer expectations, and challenging norms, has put pressure on organizations to embrace automated

digital methodologies. We look forward to our partnership with Soroco to accelerate our customers' digital transformation processes. Our combined offering will further help to reduce overall operations costs, improve customer experience, drive better compliance, and improve working capital. Tech Mahindra's Center of Excellence (CoE) will help this strategic partnership to jointly deliver an integrated automation practice that offers an advanced blend of Intelligent Automation and Automation Thinking." With the strategic partnership customers will be able to leverage AI-based Process Discovery and Mining Technology to accelerate their transformation outcomes. Tech Mahindra's Business Process Services has adopted an integrated automation practice that offers an advanced blend of intelligent automation and automation thinking with varied services such as automation consulting, opportunity assessment, tool selection, cost-benefit analysis, and RPA (Robotic Process Automation) roadmaps, among others to the customers. Samson David, CEO, Soroco, said, "We are pleased to partner with Tech Mahindra, one of the leaders in digital transformation. At Soroco, we are building the world's first work graph platform, a database of shared digital experiences emanating from our daily work. It provides near real-time insights into how work gets done on the ground and helps enterprises in their transformation journey. Through this partnership, we aim to help organizations globally to be able to assess how work happens on the ground and make a profound impact on how people truly experience work." Tech Mahindra believes in DigitALL philosophy for comprehensive Business Transformation. As part of NXT.NOW™ framework, which aims to enhance 'Human Centric Experience', Tech Mahindra focuses on investing in emerging technologies and solutions that enable digital transformation and meet the evolving needs of the customer

Tech Mahindra Q1'23 Revenues Up 24.6% YoY

Tech Mahindra Ltd., a specialist in digital transformation, consulting and business re-engineering services announced the audited consolidated financial results for its quarter ended June 30th, 2022.

Financial highlights for the quarter (USD)

- Revenue at USD 1,632 mn; up 1.5% QoQ and up 18.0% YoY
- Revenue growth 3.5% QoQ in constant currency terms
- EBITDA at USD 239 mn; down 13.5% QoQ, down 6.2% YoY
- EBITDA margin at 14.8%
- Profit after tax (PAT) at USD 143 mn; down 28.0% QoQ and down 22.0% YoY
- Free cash flow at $71.6 mn, conversion to PAT at 50.2%

Financial highlights for the quarter ( )

- Revenue at 12,708 crores; up 4.9% QoQ and up 24.6% YoY
- EBITDA at 1,880 crores; down 10.0% QoQ, up 0.2% YoY
- Consolidated PAT at 1,132crores; down 24.8% QoQ and down 16.4% YoY

Other Highlights

- Total headcount at 158,035 up 6,862 QoQ
- Cash and Cash Equivalent at USD 1,114 mn as of June 30, 2022

CP Gurnani, Managing Director & Chief Executive Officer, Tech Mahindra, said,

"We are starting this fiscal with a renewed commitment towards delivering consistent organic growth. We remain resilient and watchful given the dynamic global macro-economic environment and will continue to invest in new and emerging technologies to deliver differentiated offerings. Our winning strategy rests on the pillars – 'Purpose, People and Performance' which is aiding us to responsibly capitalize on the strong demand environment in the market."

Rohit Anand, Chief Financial Officer, Tech Mahindra, said,

"Delivery transformation, cost optimization and cash conversion will be key focus areas, as we continue to offset the strong supply side headwinds in the market. We aim to expand our profitability through operational excellence and improved operating metrics over the course of FY'23.."

Key Wins

- Tech Mahindra was chosen by one of the largest telecom operators in Africa, as the preferred partner for transitioning to Next Generation Digital IT Operations including Infrastructure Support and managed services.
- Tech Mahindra was chosen by a large municipal organization in the Middle East to implement digital services transformation leveraging their next-generation AI-Ops frameworks & tools to enhance customer experience and establish an agile customer service delivery.
- Tech Mahindra has been chosen by a telecom giant in the US to jointly scale its operations through the co-creation of a captive center for BSS & OSS operations enabling the Telecom IT talent build-out for 5G and wireless technologies.
- Tech Mahindra was chosen by a leading security services company in Northern Europe to transform and manage its cross-functional arms through infrastructure, cloud, and application modernization including End User services.
- Tech Mahindra has won a deal with a leading Insurance Carrier in the US for Cloud transformation, and end to end infra managed services including data center management and network services.
- Tech Mahindra was chosen by a leading Asian telecommunication group to implement an end-to-end system integration and drive SDWAN deployments in the South-East Asian markets
- Tech Mahindra was selected by a leading financial institution in Europe to digitally transform its end-to-end BPO + Digital Transformation services across different product divisions and establish a more customer-centric service delivery model.
- Tech Mahindra was chosen for a multi-year deal strategic by a global telecom giant for its platform modernization, which handles emergency and daily public safety communications enabling better operating performance and experience for its end customers.
- Tech Mahindra was awarded a multi-year deal for digital transformation and contact center management deal by a leading telecommunications operator based in Africa.

Business Highlights

- Makers LabTM, R&D arm of Tech Mahindra, launched first-of-its-kind, 'Meta Village', a digital twin of Pargaon in Maharashtra to gamify learning on the Roblox platform. Using Roblox, students can learn coding in Bharat MarkUp Language (BHAML), a platform built by Makers Lab to help code in native language.
- Tech Mahindra has collaborated with Microsoft to build SenTindra, a cloud-based virtual security operations center developed on Microsoft Sentinel. SenTindra offers a single monitoring pane with all security components integrated covering the entire lifecycle of the migration and transformation requirements for a seamless and integrated security experience for customers.
- Tech Mahindra announced a collaboration with Keysight Technologies to certify 5G equipment in its 5G O-RAN test lab facility in New Jersey. This will enable the lab to perform end-to-end validation of designs developed by OEMs in compliance with ORAN alliance specifications.
- Tech Mahindra launched AmplifAI- a suite of AI offerings containing its platforms GAiA, an AI & ML Ops platform; Sayint, an advanced speech analytics solution and MobiLytix, an AI-powered marketing studio to democratize & scale the deployment of AI in a responsible manner.
- Tech Mahindra has expanded its collaboration with Pegasystems driving innovative industry solutions that will help accelerate the digital transformation of customers. Through the recent synergistic acquisitions and investments, Tech Mahindra's Pega Practice has capitalized on its innovative business solutions to address evolving customer requirements.
- Tech Mahindra inaugurated a 5G Innovation centre in Bellevue, WA to help customers co- create and co-innovate 5G-powered solutions. The Lab will build end-to-end vertical solutions for enterprises by combining an ecosystem of partners in both telecom and cloud space.
- Tech Mahindra has announced a partnership with Amesto Aces AS, to provide trained & certified Salesforce resources and deep industry expertise to its customers across Europe, this partnership will also address the current shortage of skilled resources in the region.
- The International Chess Federation and All India Chess federation strengthen their partnership with Tech Mahindra, to provide a next-generation digital fan experience by leveraging Fan Nxt. Now. As part of this global tie-up, Tech Mahindra will come on board as a digital partner for the 44th edition of FIDE chess Olympiad which will take place in India for the 1st time.
- Tech Mahindra has collaborated with Anritsu, a global provider of test and measurement solutions, to launch an IoT experience lab. The experience lab will be an incubator, as well as a research and development center, for IoT device manufacturers to validate their designs in the early development phase and to help launch best-in-class IoT products.

Awards and Recognitions

- Tech Mahindra's CEO & MD, Mr. CP Gurnani has been recognized as Outstanding Business Leader by CEO Forum India at the 2nd Raymond CEO Forum Awards Night 2022
- Marksmen Daily in association with India Today recognized Tech Mahindra as one of the 'Most Preferred Workplace 2022'.
- ET Edge awarded Tech Mahindra in The Economic Times Sustainability Congress Series – Sustainable Organizations 2022.
- Dun & Bradstreet India recognised Tech Mahindra as a top performer in the ESG Performance – Software and BPM sector
- Ranked second with a sustainability score of 46, in the Capri Global Capital HURUN List Impact 50 for SDG Goals
- Ranked 2nd amongst the Top 35 companies in Businessworld India's Most Sustainable Companies 2022 in this year's "The Sustainable World 2022 Summit" organized by Business World.
- Recognized by ET Edge for adopting valuable sustainable initiatives in The Economic Times Sustainability Congress Series – Sustainable Organizations 2022

Telecom Egypt and Orange Jordan Sign Collaboration Agreement to Serve Iraq

Telecom Egypt, Egypt's first integrated telecom operator and one of the largest subsea cables operators in the region, announces the signature of a strategic collaboration agreement with Orange Jordan, the leading operator of integrated communications services and one of Orange Group's subsidiaries, to create a highly reliable terrestrial system connecting Iraq to Europe through Jordanian and Egyptian territories. The new system will commercially be named "Cairo Amman Baghdad System" or "CAB System". It falls in line with both operators' strategies to extend their footprints to the Middle East market generally, and to the Iraqi market specifically, for the purpose of providing state-of-the-art telecommunications and connectivity solutions. The system will capitalize on Telecom Egypt's position, international assets, and facilities as well as Orange Jordan's fully diversified infrastructure in Jordan. Integrating the companies' distinguished and robust networks will offer reliable, low latency internet connectivity services through highly resilient, diverse routes to meet Iraq's growing market demand. CAB System will be ready for service in the third quarter of 2022. Once launched, it will be the most advanced, scalable gateway and express route connecting Iraq to Europe using the companies' networks. Adel Hamed, Telecom Egypt's Managing Director and CEO, commented: "We are pleased to be part of this new solution in collaboration with Orange Jordan. The new CAB System will enrich user experience for the Iraqi market

by serving it through a new, highly resilient and completely diverse route. Telecom Egypt and Orange Group are strategic partners and we're very proud of the special relationship with Orange Jordan that is reflected in this collaboration agreement between the two companies." Thierry Marigny, Orange Jordan CEO, said: "The CAB System is a true game changer for creating new routes reaching the Iraqi market. This strategic partnership with Telecom Egypt will enable us to serve this rapidly growing market with new, highly reliable terrestrial routes that connect Iraq to Europe seamlessly. Orange Jordan is proud to be part of the CAB System, which will contribute to an enhanced, high-speed highway between Europe and Iraq, affirming its position as a responsible digital leader."

Telecom Egypt Records 17% Increase in Revenue in 1H22

Telecom Egypt has reported consolidated revenues of EGP20.4 billion (USD1.08 billion) for six months ended 30 June 2022, representing annual growth of 17%, which the company said was 'mainly attributed to an 18% spike in retail revenue and 16% increase in wholesale revenue due to higher data, infrastructure, and capacity sales'. EBITDA, meanwhile, stood at EGP8.1 billion for H1 2022, up 20% from the EGP6.7 billion it recorded in the corresponding period of 2021, with the increase 'due to an improved revenue mix. Meanwhile, the company reported a net profit of EGP3.8 billion for the first half of 2022, representing a 2% decline from H1 2021, though Telecom Egypt said that excluding non-operational items, net profit reached EGP4.1 billion, translating to 16% y-o-y growth, which it said was 'thanks to the robust operational performance, higher Vodafone investment income, and lower interest expense, which all together overshadowed the 27% increase in D&A costs'. Operationally, Telecom Egypt reported a fixed broadband subscription base of 8.435 million as of 30 June 2022, up 13% from 7.475 million a year earlier, of which the lion's share – 8.148 million, up from 7.221 million – were residential. Fixed voice subscriptions also continued to rise, standing at 11.277 million at mid-2022, compared to 10.297 million a year earlier. Meanwhile, in the mobile sector Telecom Egypt reported a total of 11.740 million subscriptions as of 30 June 2022, with this representing a significant increase from the 8.141 million it had in 1H21. Commenting on the company's performance, Telecom Egypt's managing director and CEO, Adel Hamed, said: 'I am pleased with our excellent interim results year-to-date despite the myriad of global challenges, which include devaluation, inflation, and supply chain pressures. We've clearly demonstrated our resilience, as revenue grew organically across all business units.'

ARTICLE

The Winds of Change: Broadband Investment Contributes to the Benefit of All

Broadband infrastructure has become essential to our digitalized world as the bedrock and conduit of most of our economic, political, and social activities. Its benefits and contribution to economic prosperity are clearly positive[1]. Yet, as the digital world evolves, the provision, funding, and financing of broadband still largely rely on old-world network operator-centric models, that are failing to reflect 21st century market realities. These put the financial sustainability of broadband infrastructure going forward at risk. But the winds of change are upon us. Given its clear benefits, and the reliance of our economies and societies on broadband, its financial sustainability is key and has consequently moved onto the agendas of many policymakers in many jurisdictions. This follows strong industry advocacy efforts over the last decade that have highlighted the pitfalls of an uneven regulatory playing field in the long run. *"The rules in place for twenty years are running out of steam, and operators no longer have the right return on their investments. It is necessary to re-organize the fair remuneration of the networks,"* said EU Commissioner for Internal Markets Thierry Breton in an interview in May 2022[2]. Broadening the base of contributors to ensure that all those that benefit from broadband infrastructure are enabled to contribute to it is the tenor of many discussions taking place across the world.

> *As digitalization of our society is ongoing, demands on network development and optimization will keep growing. A recent study by the GSMA finds that monthly global consumer internet traffic volumes have been growing at 34% per year, representing per user growth of around 27% every year between 2015 and 2020 . This trend will continue in the wake of the Metaverse and web 3.0. The average mobile user in Europe is expected to use 16.2 GB/month in 2023, compared to 8.5 GB/month in 2021, while a fixed broadband line is expected to use 454 GB/month in 2023 compared to 293 GB/month in 2021.*

Imme Philbeck
Chief Economist and Director of Sector Development
SAMENA Telecommunications Council

New premises and approaches for a new world

The way we bring access to connectivity can no longer ignore the changes that our world has and is undergoing: the investment, funding and financing models that enabled earlier infrastructure development and its utilization, that developed today's digital ecosystems, and which allowed for possibilities that citizens would have access to relevant content and digital services no longer suffice. They were created for the market realities and economic perspectives of the 20th century. Today, however, many companies and industry-related stakeholders benefit from delivering services through broadband infrastructure. For some companies, such service delivery constitutes a simple yet powerful business model that leverages broadband infrastructure traditionally built solely by telecom operators. Recent reports by AXON[3] Partners and GSMA[4] show that most new value from the digital revolution is captured by over-the-top services and content providers: the largest share of global internet traffic, namely 57%, is generated by only six companies, shareholder returns have stagnated for Internet access connectivity, growth in market capitalization and revenues of telecommunications operators are lagging significantly behind that of the big global digital platforms, and global traffic share of different OTT services / platforms take the lion's share, as shown in Fig.2.

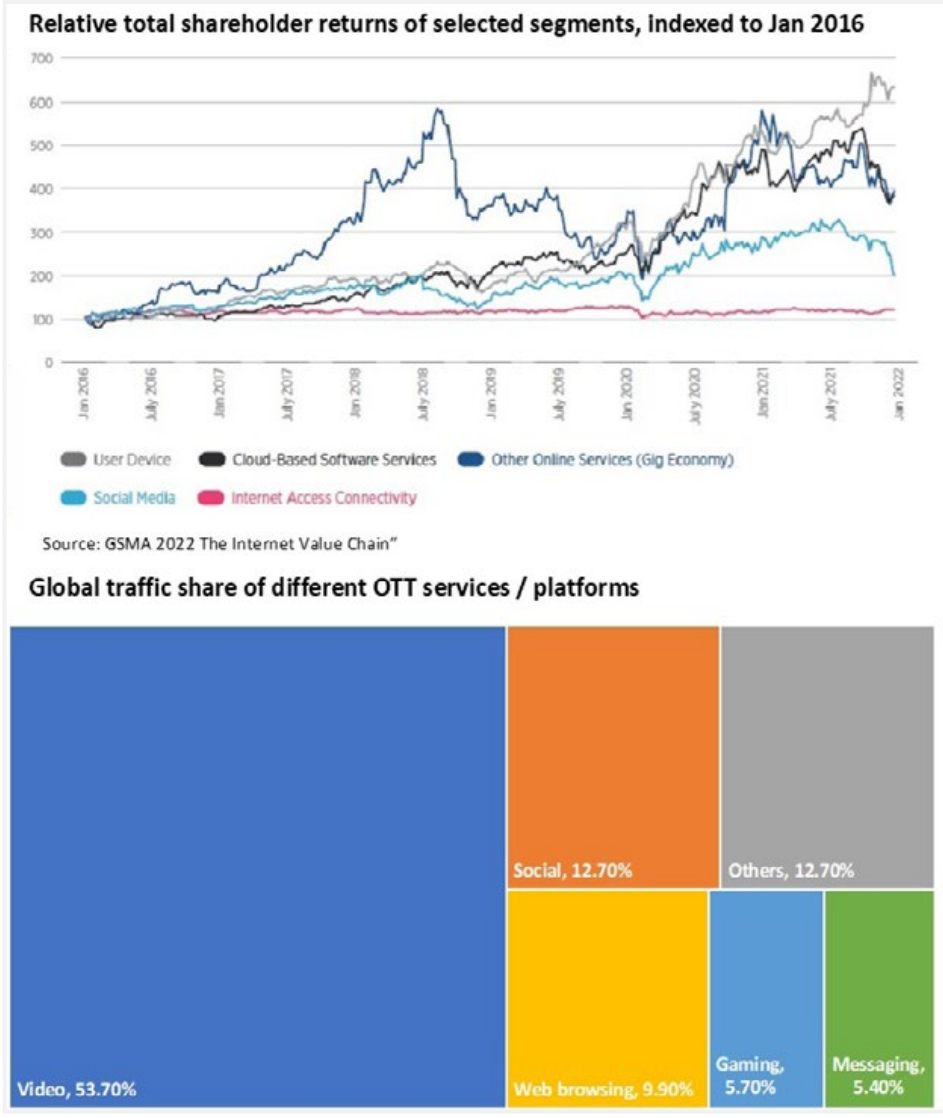


Figure 1(A): Digital value capture

As digitalization of our society is ongoing, demands on network development and optimization will keep growing. A recent study by the GSMA finds that monthly global consumer internet traffic volumes have been growing at 34% per year, representing per user growth of around 27% every year between 2015 and 2020[5] . This trend will continue in the wake of the Metaverse and web 3.0. The average mobile user in Europe is expected to use 16.2 GB/month in 2023, compared to 8.5 GB/month in 2021, while a fixed broadband line is expected to use 454 GB/month in 2023 compared to 293 GB/month in 2021[6]. New value-added services, including those offered by OTT players, will continue to develop, calling for improved connectivity to be provided by network operators[7]. In this regard, OTT service providers have noted that emerging services will not be possible if there are no drastic improvements in today's telecoms networks[8]. This position is emphasised in the European Commission's 2030 Digital Compass: the European way for the Digital Decade: *"By the end of this decade, new digital communications features and capabilities such as high-precision, holographic media, and digital-senses over the networks, are expected to provide a whole new perspective to a digitally enabled society underpinning the need for gigabit connectivity. Well before the end of the decade, businesses will need dedicated Gigabit connections and data infrastructures for cloud computing and data processing, in the same way as schools and hospitals will need this for eEducation and eHealth. High performance computing (HPC) will require terabit connections to allow real-time data processing."* [9]

Therefore, to meet these objectives and provide better quality of service to consumers, telecom operators must invest heavily in upgrading their network infrastructure and develop 5G and FTTH networks. This, however, can only be achieved if the contributing base to broadband infrastructure is broadened. According to the Chairman and CEO of Telefonica José María Álvarez-Pallete López, demands on networks will only be able to be met when all stakeholders that benefit from networks start to contribute to the costs of its provision. *"Today roughly 56 percent of the capacity of the network—of the European networks in this case—is being used by only five over-the-top [OTT] players that pay nothing for the use of the network. The huge growth in traffic during the pandemic has highlighted that there is an asymmetric effort here, and I think the time has come for more*

players to pay their fair share of the cost of investing in the networks."[10]

Recent developments

The impact of global digital platforms on local markets and infrastructure in different sectors and the question of "*if and how to regulate or obtain contributions from them*" have been looked at over this past decade by various industry stakeholders, different institutions, and organizations. Recently, calls for contributions from global digital platforms to the financing and funding of broadband infrastructure used to deliver their services have grown louder and more frequent.

The Florence School of Regulation found in 2019 in its Report "Digital Platforms – The New Network Industries? How to regulate them?"[11] that broadband infrastructure may become financially unsustainable in the long-run in the absence of intervention. *"[T]he involvement of online platforms in the network industries benefits consumers by fulfilling unmet needs, often efficiently and at low cost. Platforms do this partly by exploiting access to existing network infrastructures that are often vital for national economic growth and wellbeing. However, if online platforms are allowed to side-line traditional network operators, it may mean that vital investment in building and maintaining the infrastructures on which these markets are founded becomes unsustainable in the long-term."* In 2019, the Working Group of the Broadband Commission for Sustainable Development ("BBCom") on "Broadband for All: A Digital Infrastructure Moonshot for Africa"[12] developed a thorough roadmap and action plan for 2019, to achieve universal, affordable, and good quality broadband across Africa. One of its observations was that "Digital services are increasingly provided by non-network operators and as the infrastructure gap is caused by a funding gap, innovations to finance models may of necessity require obtaining contributions from non-network operators on a direct or indirect basis." Moreover, the Report recommended that *"governments should review the sources of USAFs and 'develop innovative models to ensure the contribution base is broadened to encompass all those who derive economic benefit from the investment".* [13] These observations and principles were further examined and developed in 2020 by the BBCom's Working Group on '21st Century Financing Models for Bridging Broadband Connectivity Gaps' [14], which recommended in its Report published in October 2021, that all companies who derive benefit from the use of broadband infrastructure should contribute towards the cost of its deployment. The Report found that para-

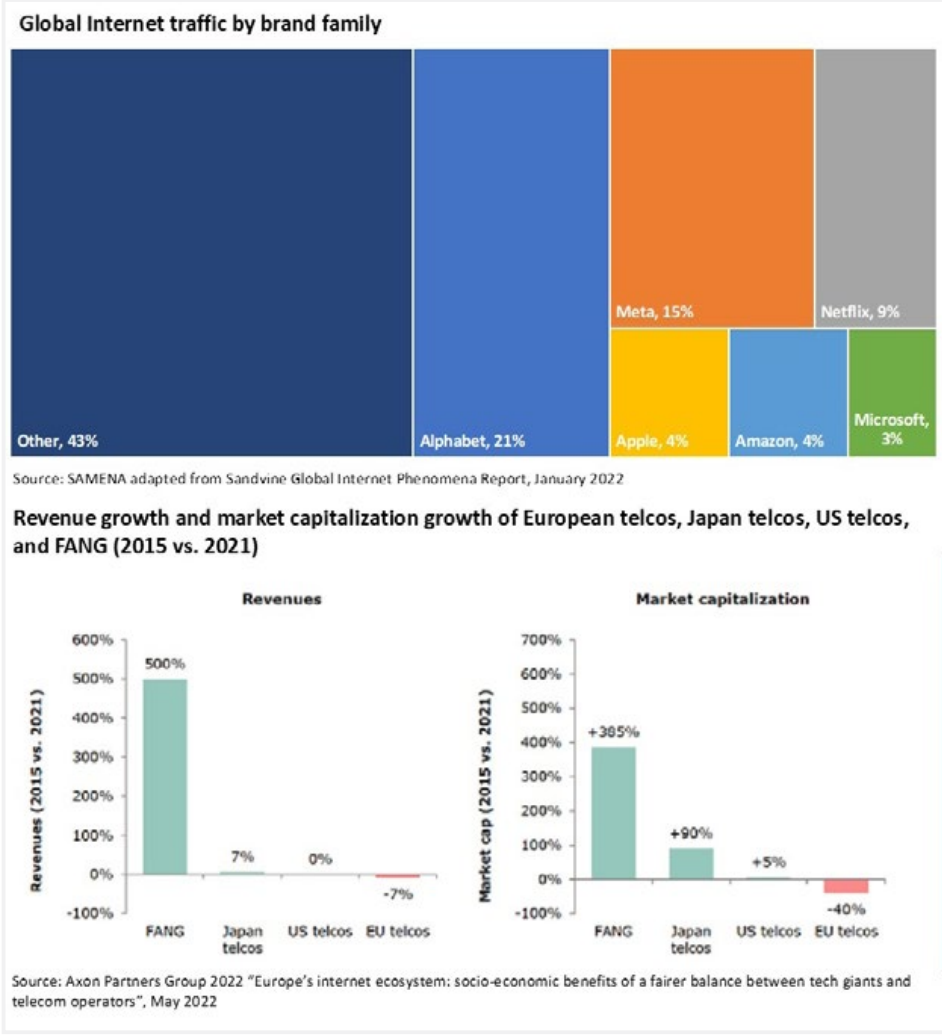


Figure 1 (B): Digital value capture

Figure 2: Discussions on "Broadening the base of contributors" are taking place in different regions

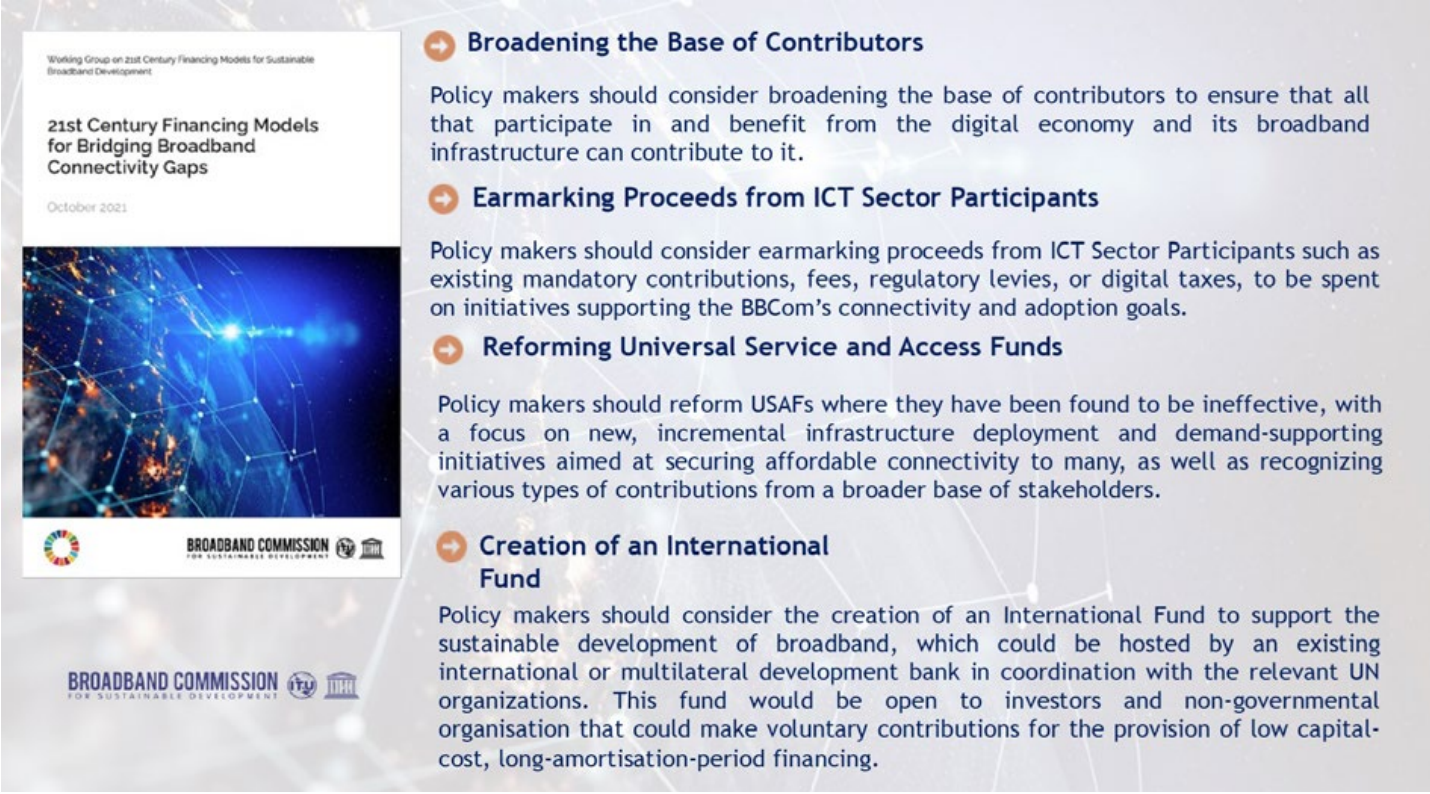


Figure 3: BBCom 21st Century Financing Models for Bridging Connectivity Gaps - Key Policy Recommendations

digm shifts are required to bring affordable and meaningful connectivity to the un- and underconnected. These include (1) broadening the base of contributors; (2) ensuring that all who derive benefits from the digital economy, as consumers or as producers contribute objectively, equitably and fairly towards connecting the unconnected; (3) for such contributions to be made by all ecosystem players, taking into account the new realities of the disaggregation of digital service provision and, therefore, revenue generation from underlying network infrastructure investments; (4) making such contributions sustainable and predictable; and (5) for such contributions to be managed efficiently and disbursed in a timely and prioritized manner. The Report made four key strategic recommendations that act as a foundation for driving connectivity and shine a light on a growing narrative around connectivity – one that emphasizes the shared benefits we all enjoy, our collective responsibility, the commitment required, the reform we must face, and the opportunity to enable global connectivity for all.

In November 2020, Smart Africa published its study "The Impact of OTT Applications and Services on the Telecommunications Sector in Africa" [15], with a particular focus on broadening the base of contributors through the possibility of taxation. Its key recommendations included that "regulators should not block or license OTTs (the latter at least for now). As for taxation, consumer-level taxation should be avoided whilst regulators should take steps to assemble information enabling them to tax larger OTTs (those with substantial revenues across the African continent). Such taxation should be done in a coordinated fashion for maximum efficiency and impact, working in collaboration with regional and continental organizations such as the Council of African regulators, the Regional Economic Communities, the AU and Smart Africa." [16] Preceding this study, UNCTAD in its Digital Economy Report 2019 found that "Taxation is a key concern for value capture …. As developing countries are mainly markets for global digital platforms, and their users contribute significantly to the generation of value and profits, authorities in these countries should have the right to tax such platforms." [17] In regard of taxation, the OECD has reached agreement on the long-awaited bold new framework on International Tax Reform[18] to address the international challenge of multinational enterprises generating value from tangible or intangible assets in one jurisdiction and being subject to taxation on its consolidated profits in another often lower-tax jurisdiction [19]. In addition, certain jurisdictions have implemented digital taxes to address rules around taxable presence and apply special turnover-based taxes to digital companies to generate local contributions. Digital taxes implemented in jurisdictions typically impose a percentage tax on gross revenues derived from the sale of online advertising or the use of user data pertaining to the jurisdiction, with thresholds designed to target the tax at companies operating on a global scale. In this context, the BBCom's Working Group on 21st Century Financing Models for Bridging Broadband Connectivity Gaps recommends that where implemented, a portion of any such tax revenue is earmarked to finance digital infrastructure development and broadband adoption.

The European Commission is in the process of implementing many new regulations and legislation to foster a healthy and balanced development of the digital economy in Europe. In July 2022, the Digital Services Act package was adopted, consisting of the Digital Services Act ("DSA") and the Digital Markets Act ("DMA"). The package targets the creation of a safer digital space

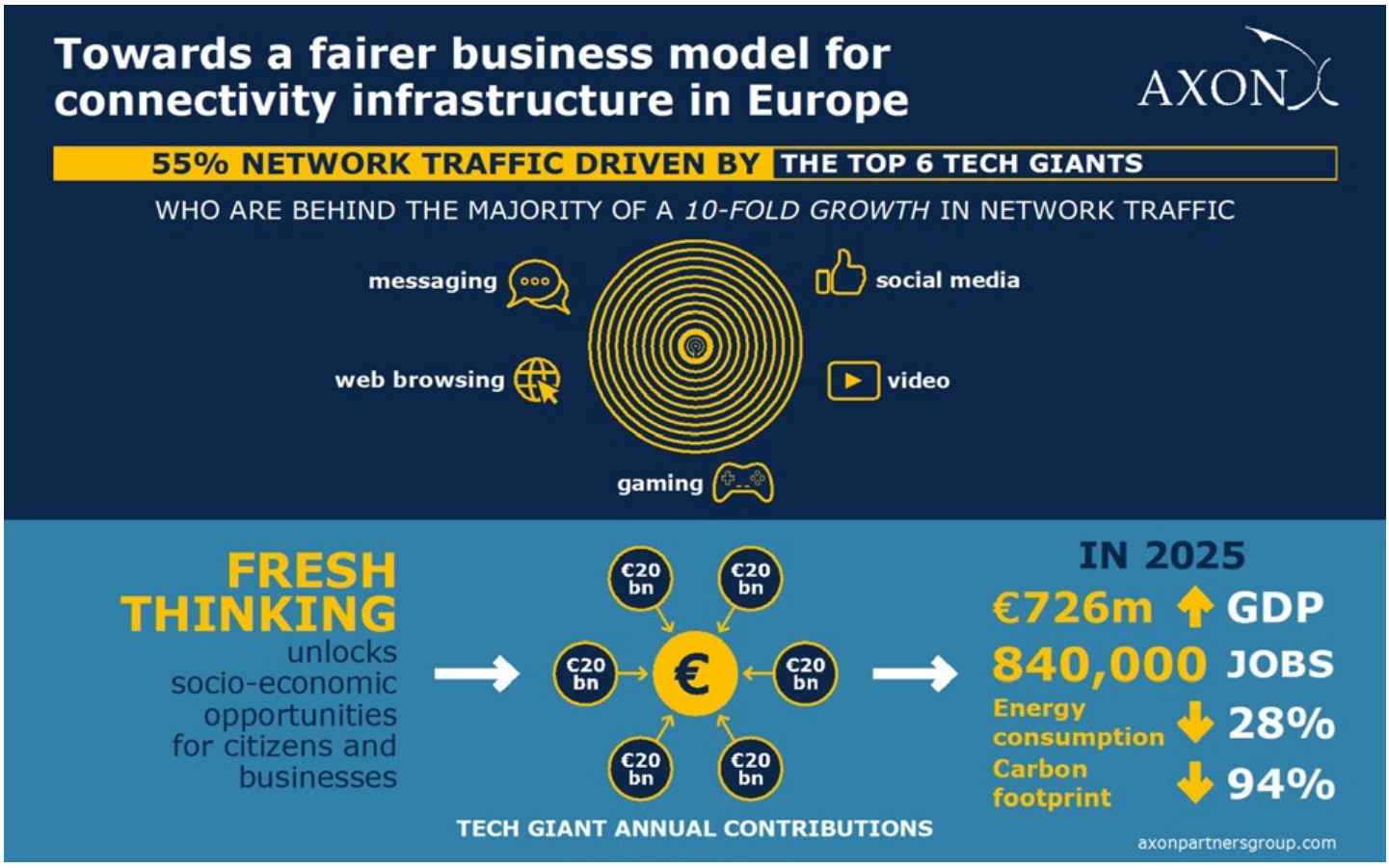


Figure 5: Socio-economic effect of an annual OTT contribution

where the fundamental rights of users are protected, where a level playing field for businesses is created and where control over digital ecosystems by few large platforms is curbed and kept in check. [20] On 26 January 2022, the Commission launched the European Declaration on Digital Rights and Principles for the Digital Decade[21], which specifically calls for "developing adequate frameworks so that all market actors benefiting from the digital transformation assume their social responsibilities and make a fair and proportionate contribution to the costs of public goods, services and infrastructures, for the benefit of all Europeans". In this vein, to meet its ambitious high-speed Internet targets for 5G and fibre rollout, the European Commission plans to present a new Connectivity Infrastructure Act in the fall of 2022, which will include measures that oblige certain online platform services to contribute to the costs of 5G.[22] Strong advocacy in this regard for a "fair share" has come from network operators, in particular in Europe. In February 2022, four of Europe's leading Operators, Deutsche Telekom, Vodafone, Telefonica, and Orange, have called on the EU to introduce rules at EU level to make the principle of a "fair and proportionate contribution to the costs of public goods, services, and infrastructure" a reality. In an open letter the operators stated that *"The investment burden must be shared in a more proportionate way. Today, video streaming, gaming and social media originated by a few digital content platforms accounts for over 70 percent of all traffic running over the networks. Digital platforms are profiting from hyper scaling business models at little cost while network operators shoulder the required investments in connectivity. At the same time our retail markets are in perpetual decline in terms of profitability."*[23] In the Caribbean, "Fair Share" was discussed by the industry at the recent CANTO conference.[24] There was general agreement that investors will not support investment in 5G networks in the region at present and that a regulatory solution to Fair Share is required. In South Korea, a national law to create regulatory conditions for a fairer contribution to network costs is being discussed, following a court ruling that Netflix was abusing its market power by refusing to pay a local broadband network operator, SKB, for the use of its network to deliver Netflix services to consumers. [25] And in

> *To put recommendations into actions, Smart Africa together with SAMENA Council during ITU's World Telecommunications Development Conference 2022 ("WTDC22") in Kigali at the Partner to Connect ("P2C") Roundtable announced its joint pledge to advocate and drive the implementation of the first strategic recommendation "Broadening the Base" of the BBCom's WG Report on 21st Century Financing, Funding, and Investment models to close the connectivity gap.*

the United States, policymakers are moving towards universal service also funded by digital platforms.

A recent report by AXON Partners for ETNO [26] has examined the socio-economic benefits of a fairer balance between tech giants and telecom operators for Europe's internet ecosystem instituted through an annual OTT contribution, arguing that in the absence of intervention, the European Commission's "Digital Decade" connectivity targets would be threatened as viable returns for network operators are undermined. *"Telecom network operators are in no position to negotiate fair commercial terms for their networks' ever-increasing use by the leading OTTs: their offerings are now indispensable to users; their market dominance is ever more entrenched; and there are no economic, regulatory or policy mechanisms in place to help restore a more level playing field."* The Report concludes that *"an annual contribution of €20 billion by OTTs to the development of telecom infrastructure in the EU would raise GDP by as much as €72 billion by 2025"*. The contribution would have many other positive effects such as on employment, user experience and innovation as well as energy consumption and carbon emissions. In terms of possible tools for a contribution, the report proposes a regulated mechanism for direct agreements between network operators and the largest Digital Platforms in line with the approach taken for the regulation of "gatekeepers" under the Digital Services Act. [27]

At this stage, many recommendations have been made, but little concrete steps have been taken. To put recommendations into actions, Smart Africa together with SAMENA Council during ITU's World Telecommunications Development Conference 2022 ("WTDC22") in Kigali at the Partner to Connect ("P2C") Roundtable announced its joint pledge to advocate and drive the implementation of the first strategic recommendation "Broadening the Base" of the BBCom's WG Report on 21st Century Financing, Funding, and Investment models to close the connectivity gap. The pledge targets 30 Smart Africa member countries and proposes several different initiatives to achieve a broadened base of contributors to broadband infrastructure.

Concluding remarks

Given changed market realities and the changed role that broadband plays in our economies and societies, there is a call among many industry stakeholders, institutions, and organizations for contributions to broadband infrastructure by all those that benefit from broadband infrastructure, in particular big digital platforms. The rationale seems clear: broadband is the fundament of our digital economies and societies. Thus, calls are growing louder for models of provision to reflect new "fair share" paradigms of shared benefits, collective responsibility, and predictable and sustainable commitment to ensure that all can share in the benefits of the digital revolution. It remains to be seen, how these calls and recommendations are turned into actions and how they are implemented across different jurisdictions.

1. https://www.itu.int/en/ITU-D/Regulatory-Market/Pages/Economic-Contribution.aspx
2. https://www.lesechos.fr/tech-medias/hightech/bruxelles-veut-taxer-les-gafam-pour-financer-les-reseaux-telecoms-1404614
3. https://www.axonpartnersgroup.com/etno-report/
4. https://www.gsma.com/publicpolicy/wp-content/uploads/2022/05/Internet-Value-Chain-2022.pdf
5. https://www.gsma.com/publicpolicy/wp-content/uploads/2022/05/Internet-Value-Chain-2022.pdf
6. Axon Partners 2022
7. Europe's internet ecosystem: socio economic benefits of a fairer balance between tech giants and telecom operators, Axon Partners, May 2022, see https://www.axonpartnersgroup.com/etno-report/
8. CNBC, "Meta says its metaverse ambitions won't be possible without better cellularnetworks",https://www.cnbc.com/2022/03/02/meta-says-todays-cellular-networks-arent-ready-for-themetaverse.html
9. European Commission, "2030 Digital Compass: the European way for the DigitalDecade",2021;Availableat:https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52021DC0118
10. https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/telecoms-future-in-the-web3-era-jose-maria-alvarez-pallete-lopez?cid=eml-web
11. Finger, Matthias, and Irina Lapenkova, 2019, Digital Platforms – The New Network Industries? How to regulate them? Network Industries Quarterly, Vol. 21, No. 3, September
12. See https://broadbandcommission.org/Documents/working-groups/DigitalMoonshotforAfrica_Report.pdf
13. https://broadbandcommission.org/Documents/working-groups/DigitalMoonshotforAfrica_Report.pdf
14. https://www.broadbandcommission.org/working-groups/21st-century-financing-models-2020/
15. https://smartafrica.org/knowledge/recommendations-to-smart-africa-alliance-member-countries-to-address-digital-infrastructure-financing/
16. See p.16 of "The impact of Over-The-Top Applications and Services on the Telecommunications Sector in Africa", https://smartafrica.org/knowledge/recommendations-to-smart-africa-alliance-member-countries-to-address-digital-infrastructure-financing/
17. https://unctad.org/webflyer/digital-economy-report-2019, p. XX
18. https://www.oecd.org/newsroom/130-countries-and-jurisdictions-join-bold-new-framework-for-international-tax-reform.htm
19. The evolving digital economy benefits substantially from the digitalization of business models enabling multinational companies to carry out business in countries where they do not have a physical presence. The relevance of the OECD work will be to seek to correlate, fairly and reasonably, value capture per jurisdiction with the appropriate taxation to apportion to that territory. This work will help localize taxes to these jurisdictions where such companies do not pay tax. Addressing the Tax Challenges of the Digital Economy',Action1Deliverable2014,https://read.oecd-ilibrary.org/taxation/addressing-the-tax-challenges-of-the-digital-economy_9789264218789-en#page1 ; and any subsequent reports on BEPS by the OECD. https://www.oecd.org/tax/international-tax-reform-multilateral-convention-to-implement-pillar-one-on-track-for-delivery-by-mid-2023.htm
20. https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package
21. https://digital-strategy.ec.europa.eu/en/policies/digital-principles
22. https://www.politico.eu/article/commission-present-connectivity-infrastructure-act-eu/
23. https://www.telekom.com/en/company/details/united-appeal-of-the-four-major-european-telecommunications-companies-646166
24. https://www.canto.org/conference-speeches-and-presentations/
25. Thecourtconfirmedtwo-sidedstructureofthemarketonthebasisthat Netflix has one business relationship with SKB and another with its subscribers which it accesses via the SKB's network. The court also confirmed that the question of payment for the delivery of Netflix data is entirely separate from Net Neutrlaity and protections of end users access to the Internet.https://www.fiercevideo.com/regulatory/netflix-handed-loss-south-korea-network-usage-fee-court-case , https://globalcompetitionreview.com/review/the-asia-pacific-antitrust-review/2022/article/overview-cartels-and-abuse
26. Europe's internet ecosystem: socio economic benefits of a fairer balance between tech giants and telecom operators, Axon Partners, May 2022, see https://www.axonpartnersgroup.com/etno-report/
27. A new regulatory obligation could include principles of fair and proportionate compensation, and an enforcement or dispute resolution mechanism based on, e.g. the example of the Australian News Media and Digital Platforms Mandatory Bargaining Code. https://www.accc.gov.au/focus-areas/digital-platforms/news-media-bargaining-code

ARTICLE

How Spectrum Allocation will Shape the Region's Digital Economy

Dr. Abdulhadi Mahmoud AbouAlmal
Director Tech Standards &
Spectrum Management
etisalat by e&

The mobile industry is the engine for national digital transformation and the foundation for the digital economy that will shape our economy and society in unprecedented ways in the next decade. PWC estimates that 5G technology will add $1.3tn to global GDP by 2030.

This digital universe has seen the emergence of new services such as HD video, XR, and the metaverse. These evolutions raise the requirements for higher data rates such as 1Gbps anytime, anywhere and 10Gbps in hotspots to support a ubiquitous digital user experience.

To that end, a sufficient mid-band spectrum will be mandatory for future mobile service growth. GSMA Research estimates that mid-band 5G (1GHz – 7GHz) could deliver $610B GDP growth in 2030 (63.5% of the total 5G benefit). The GSMA also says an average of 2GHz mid-band per country is necessary as spectrum reserve for mobile services in the next decade. To secure optimal 5G performance in the long-term, more capacity in this range is needed, and 6 GHz is a prime candidate.

> *The GSMA Research estimates that mid-band 5G (1GHz – 7GHz) could deliver $610B GDP growth in 2030 (63.5% of the total 5G benefit). The GSMA also says an average of 2GHz mid-band per country is necessary as spectrum reserve for mobile services in the next decade.*

To build on this momentum, the mobile industry supported the adoption of 6GHz for 5G and beyond. The World Radiocommunication Conference 2019 (WRC-19) agreed to establish a new agenda item to study upper 6GHz for IMT (International Mobile Telecommunication) at WRC-23. Additionally, the GSMA has advocated 6GHz as the primary band for the future of 5G evolution and officially set up a 6GHz Supporting Group. Furthermore, several countries and MNOs have launched 6GHz IMT field tests between 2021 and 2022 such as “etisalat by e& in UAE.

Such ongoing global collaboration is important to cultivate the 6GHz IMT ecosystem to get it commercially ready for IMT evolutions beyond 5G by 2025 timeframe. Some countries have already announced consideration of 1.2GHz bandwidth within the 6GHz band for 5G and beyond. Other countries considered the split of the band, with the upper 700MHz portion potentially being planned for 5G and its evolution, while the lower 500MHz tranche is made available for exempting license. (e.g. Wi-Fi, 5G NR-U (New Radio Unlicensed), among others.

> *The World Radiocommunication Conference 2019 (WRC-19) agreed to establish a new agenda item to study upper 6GHz for IMT (International Mobile Telecommunication) at WRC-23. Additionally, the GSMA has advocated 6GHz as the primary band for the future of 5G evolution and officially set up a 6GHz Supporting Group.*

While license-exempt spectrum contributed to the delivery of many benefits to end-users worldwide, the allocation of the 6GHz band for unlicensed usage would be practically irreversible, leading to an imbalance in such mid-bands assignment along with a great opportunity loss for 5G technologies and economies. In addition, Wi-Fi user experience could be limited by broadband fixed access network capacity and penetration, unlicensed technology limitations and low-end access points rather than the shortage of spectrum. Therefore, it is important to weigh the decisions carefully when allocating frequencies to licensed or unlicensed operations in the 6GHz band, noting that supporting IMT identification in the band 6425 – 7125 MHz at WRC-23 will allow making the right decisions later depending on the specific situation.

We have already seen how mid-band can drive 5G network evolution. Furthermore, using advanced Massive MIMO technologies, 6GHz can achieve similar coverage as C-band with even higher capacity, making 6GHz an ideal band for balancing the capacity and coverage necessary to meet future wide-area deployment requirements in a cost-effective manner.

The Middle East is leading the world in digitising its economies and societies. Countries in the region were among the first to roll out 5G and are already benefiting from the rise of new use cases and business models. This progress has been the result of strategic thinking and future-proofing ICT infrastructure. Spectrum issuance should be seen in a similar light. The correct choice today will positively impact socio-economic growth for years to come.

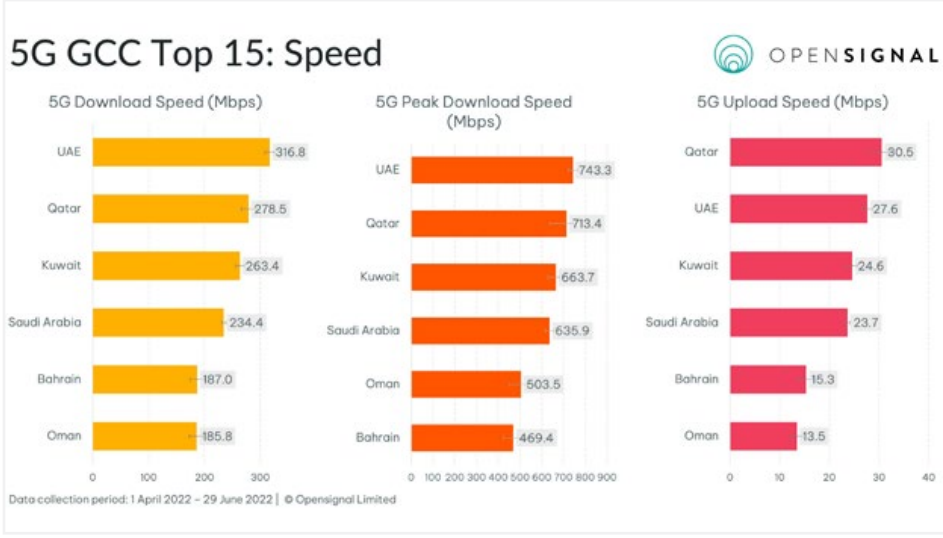
REGIONAL NEWS

UAE Leads Gulf in 5G Download Speed: Report

UAE has the fastest average 5G download speed among countries in the Arabian Gulf, with smartphone users having experienced speeds of 316.8 Mbps according to a report by UK-based company, Opensignal. Extending its lead for fifth generation (5G) peak download speed as well, UAE was ahead of Qatar with a score of 743 Mbps, 713.4 Mbps in Qatar and 663.7 Mbps in Kuwait. The GCC 5G Experience Benchmark studied smartphone users' 5G experience when using the 5G network for mobile video streaming, multiplayer mobile gaming, and voice app communication. Additionally, it looked into 5G availability and speed, as well as the uplift in experience compared with older 4G services. "5G is continuing to advance across the GCC. In all six markets, users experience much improved speeds and video experience using 5G, Opensignal noted in the report. "While smaller markets top the rankings for 5G download speed, the position of Saudi Arabia is notable: its users saw a strong uplift in both speed and video experience, as well as good 5G availability despite its size," the report adds. The UAE tops for 5G games experience with a score of 74 on a 100-point scale. While UAE is top for 5G Download Speed its score slips behind Kuwait on 5G Video Experience with a score of 72.4 on a 100-point scale. In 5G Voice App Experience, Qatar tops the rankings with a score of 80.6 on a 100-point scale. This measures the experience for over-the-top voice services using popular mobile voice apps including WhatsApp, Skype, Facebook Messenger and Facetime. In 2021, UAE had the fastest network speed of 959.39 Mbps which placed it at the top of the global list. In May 2019, Etisalat – the UAE's biggest telecoms operator – became the first service provider in the region to announce the availability of a 5G network, supporting smartphones for commercial use. It was soon followed by the UAE's second-biggest operator du, Saudi Telecom Company and Bahrain's Batelco. The Gulf region will have 62 million 5G mobile subscribers by 2026 and they will account for nearly 73 per cent of all mobile subscriptions in the region, according to a report by Swedish company Ericsson.

UAE Tops GCC Countries with Fastest Average 5G Download Speed

The three countries lead the region for 5G peak download speed as well, with a score of 743 Mbps in UAE, 713.4 Mbps in Qatar and 663.7 Mbps in Kuwait. The UAE tops GCC countries in terms of having the fastest average 5G download speed. The study was carried out by UK mobile analytics company OpenSignal. OpenSignal studied the GCC smartphone users' 5G experience when using the 5th generation (5G) mobile network for mobile video streaming, multiplayer mobile gaming and voice app communications. It looked into 5G availability and speed, as well as the uplift in experience compared with older 4G services. As per the findings of the study, the UAE leads in terms of 5G download speed, with us-



ers having experienced average speeds of 316.8 Mbps, ahead of Qatar and Kuwait. The three countries lead the region for 5G peak download speed as well, with a score of 743 Mbps in UAE, 713.4 Mbps in Qatar and 663.7 Mbps in Kuwait. The UAE also took the first place for 5G games experience with a score of 74 on a 100-point scale. "5G is continuing to advance across the GCC. In all six markets, users experience much improved speeds and video experience using 5G, OpenSignal said in its report.

UAE All Set for Comprehensive Digital Transformation

The UAE government is all set for a comprehensive digital transformation, with a new federal committee announced on Monday. Approved by the UAE Cabinet, the 'Higher Committee for Government Digital Transformation' will be chaired by Ohood Khalfan Al Roumi, Minister of State for Government Development and The Future. A strategy announced earlier this year aims to double the contribution of the digital economy to the country's GDP from 9.7 per cent to 19.4 per cent within 10 years. The strategy included more than 30 initiatives and programmes targeting six sectors and five new areas of growth. The committee will help raise the efficiency of the use of infrastructure and digital assets. It will enhance integration between government agencies and institutions. It will supervise and guide the development of the "digital ecosystem" for the UAE government. It will enhance the "readiness, competitiveness, flexibility and digital alignment" between projects and digital systems in federal government agencies. To enhance efficiency, the committee will be responsible for issuing guiding components for strategic projects related to the digitization of government services, business and operations, among others. Omar bin Sultan Al Olama, Minister of State for Artificial Intelligence, Digital Economy and Remote Work Applications, will serve as the Vice-Chairman of the committee.

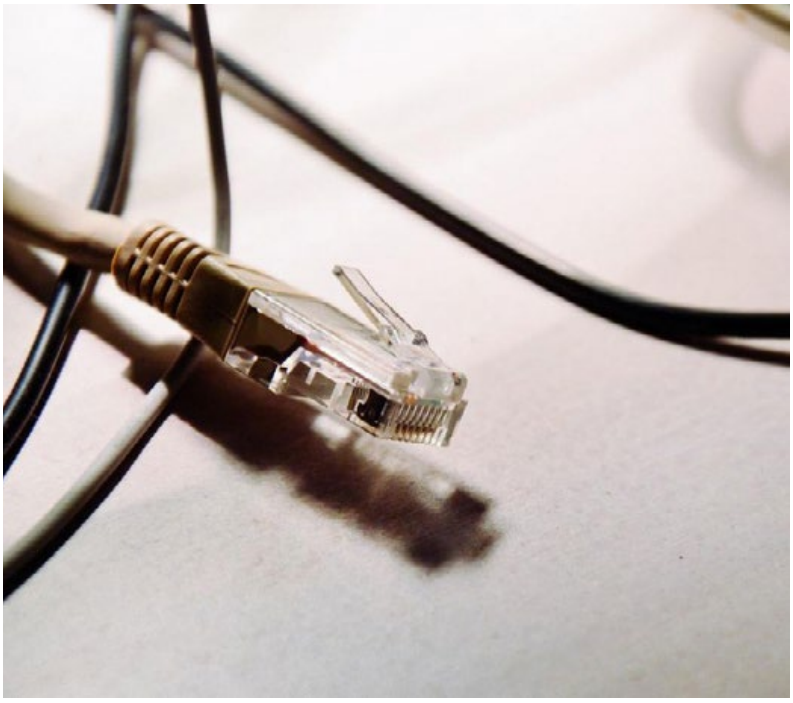
10 million Cybersecurity Threats Detected and Blocked in Oman

Trend Micro solutions detected and blocked over 4.1mn email threats, 700,607 malware attacks, and over 4.6mn URL victims' attacks in Oman in 2021, according to its annual cybersecurity report. Furthermore, it shielded remote learning and working, Smart Home Network (SHN) solutions protected devices and networks from 12,821 SHN inbound and outbound attacks and prevented 581,119 SHN events. "Oman's enterprises continue to display digital resilience through the challenges of unforeseen global events and have bravely faced an evolving threat landscape with increasingly sophisticated attacks," said Assad Arabi, managing director of Gulf Cluster at Trend Micro. "The modern-day, hybrid world has made it difficult for organizations to protect their digital environment, requiring security teams to bolster their security strategies to protect employees in and out of the office, as well as remote locations with unsecured public networks," he added. Arabi said that the annual cybersecurity report provides the country's enterprises with the insights they need to readjust their security stance and prompts them to adopt industry-leading innovations securing their digital journeys. Trend Micro Incorporated, a global leader in cybersecurity solutions, released its 2021 annual cybersecurity report – Navigating New Frontiers – highlighting the growing rate of cyber attacks by malicious actors on digital infrastructures and individuals in the modern-day hybrid work environment. The report states that globally Trend Micro solutions stopped over 94.2bn threats in 2021, a 42 per cent increase in the number of detections recorded in 2020. Attacks had surged over 53bn in the second half of 2021, blocking 41bn threats in H1 2021. Ransomware attackers are shifting their focus to critical businesses and industries more likely to pay, and double extortion tactics ensure that they are able to profit. Ransomware-as-a-service offerings have opened the market to cybercriminals with limited technical knowledge, as well as given rise to more specialization, such as initial access brokers who are now an essential part of the cybercrime supply chain. Threat actors are getting better at exploiting human error to compromise cloud infrastructure and remote workers. Homeworkers are often prone to take more risks than those in the office, which makes phishing a greater risk. According to the report, better readiness for security teams against emerging threats is necessary across sectors. With these related insights, Oman seeks improvement within the movement against the threat landscape going forward.

UAE Launches NextGenFDI to Attract World's Top Digital Companies

The UAE has launched "NextGenFDI", a major campaign to attract digitally enabled companies and highly skilled talent to the country. Dr. Thani bin Ahmed Al Zeyoudi, Minister of State for Foreign Trade, who oversees the file to attract FDI and global talent to the country, said NextGenFDI would encourage more than 300 global technology firms and software developers, data scientists and coders to relocate to the UAE. An expanding array of measures have been introduced to make the market entry process for companies simpler and more efficient. These include rapid and flexible incorporation processes to speed up licensing, bulk visa issuances, banking facilitation and commercial and residential lease incentives. Seven strategic partners have signed up under the initiative so far, such as Financial centres Abu Dhabi Global Market (ADGM) and Dubai International Financial Centre (DIFC), freezones Dubai South and DMCC, tech hub Dubai Internet City, banks Emirates NBD and WIO. More are expected to join in subsequent phases. NextGenFDI aims to leverage the UAE's unique competitive advantage and global standing as a leading business, investment, and innovation hub to support the growth of the nation's knowledge-driven economy. The campaign was launched by Dr. Al Zeyoudi alongside senior representatives from NextGenFDI. NextGenFDI is aimed at seeking out businesses from all over the world that are focused on applied technology within various sectors and provide them with the necessary market entry fundamentals needed to launch and scale from within the UAE. These companies have highly skilled developers, coders and consultants within AI, gaming, data science and software. Housing such talent within the UAE is of vital importance and this new initiative will make the market entry process for bright minds with great ideas as seamless as possible. "Large and SME businesses from across the world are approaching us and asking how they can relocate their talent, ideas and high-growth ventures to the UAE," said Dr. Al Zeyoudi. "The global interest in 2022 is unprecedented and while we are already working with some, we know many more want to follow suit. We want to ensure that the world's most promising digital companies can access all the benefits that our attractive, business-friendly environment offers – but we also want to make it easy for them. NextGenFDI is designed to ensure that our market entry process is as streamlined and coordinated as our technology ecosystem." He added, "On one hand, this is about hyper-practical measures – making it painless and rewarding for companies to relocate here. On the other, in the wake of the pandemic and the UAE's actions to position itself as a highly agile and resilient economy, this is a once-in-a-generation opportunity to bring some of the finest minds to the UAE and contribute to our drive to become the world's leading innovation hub for years to come. The UAE has a relentless focus on helping next-generation businesses to scale at speed and the leaders of future industries recognize that. If you're a company with a strong idea, the UAE would like to see it materialize and we're here to make that process as simple and efficient as possible." Dr. Al Zeyoudi further stated, "This is an opportunity that comes by only once every generation to attract the smartest and most qualified to our country in support of our efforts to make the UAE the leading innovative hub of the future. We want to ensure that promising digital companies in the world can access all the benefits provided by our attractive and business-friendlyinvestmentenvironment." The UAE is one of the region's fastest-growing economies. IMF predicts economic growth will accelerate to 4.2 percent in 2022, contrasting a slowdown in Europe, Asia and the US. In April this year, the UAE was ranked first globally as the best ecosystem for startups and entrepreneurs, according to the Global Entrepreneurship Monitor's (GEM) 2022 report, as well as the region's leading top country to attract foreign direct investment. As a key pillar of its talent attraction drive, the National Programme for Coders is offering Golden

Visas to 100,000 computer coders. The UAE also aims to establish 1,000 new digital companies and increase investment in startups from approximately US$400 million to US$1.3 billion. The NextGenFDI initiative will complement and accelerate these efforts. "We are pleased to be part of the NextGen FDI, a great initiative by the Ministry of Economy that seeks to attract top technology companies and talents to boost the emirate's economy. At Dubai South, our vision is aligned with all government initiatives, and we will be extending our full support to cater to all business needs towards achieving NextGen FDI's overall objectives." said Khalifa Al Zaffin, Executive Chairman, Dubai Aviation City Corporation and Dubai South. Commenting on the launch of the NextGenFDI campaign, Ahmed Jasim Al Zaabi, Chairman of Abu Dhabi Global Market (ADGM), said, "UAE's comprehensive business ecosystem and political stability continue to position the nation as the destination of choice for FDIs. ADGM has been playing an anchoring role in the financial landscape of the region by actively pioneering progressive regulations and innovative solutions to enable financial intermediation and attract more liquidity and investments. We have been frontrunners to introduce transformational initiatives from the first regulatory sandbox regime and fully digital eCourts to the first crypto asset framework in the region and across borders." He further added, "We intend for Abu Dhabi and the UAE to become a center to raise and deploy capital with the prudent management of risk in support of sustainably oriented, long-term economic growth for the next-generation businesses. ADGM's partnership in this campaign is a step forward and resonates with our commitment to work hand-in-hand with the UAE's government, regulators, and private sector to develop a holistic approach, one that strengthens our country's global standing as an innovative investment hub." For his part, Arif Amiri, CEO of DIFC, said, "DIFC has built the region's largest FinTech and innovation community in the Middle East and North Africa of close to 600 businesses, representing over 60 percent of all those in the region. "This already includes 34 from Eastern Europe and South Asia, illustrating DIFC is the perfect choice to help them access the fast-growing markets of the Middle East, Africa and South Asia region." "We provide them with the region's most comprehensive innovation proposition which includes education, participation in incubator and accelerator programmes, cost effective operating and regulatory licenses, access to expertise and resources, and funding options," he said. In line with DIFC Strategy 2030, the Centre is supporting sustained economic growth and further differentiating Dubai as a global hub for financial institutions, FinTech businesses and innovation companies. Ammar Al Malik, Managing Director of Dubai Internet City, commented, "The MENA region is a cradle of vast opportunities considering the size and diversity of its markets. Our leadership's progressive business policies as well as access to skilled talent have made the UAE a reliable and attractive hub for global corporations and regional firms alike. At Dubai Internet City, we are proud to have played a critical role in providing a competitive ecosystem for tech companies to thrive and collaborate over the past 20 years and aim to continue enhancing our offerings to appeal to new and ambitious customers." Ahmad Hamza, Executive Director – Free Zone, DMCC, said, "As the world's fastest growing free zone with over 21,000 registered companies, DMCC is thrilled to be partnering with the UAE Ministry of Economy on this strategic growth initiative. By streamlining incorporation processes and acerating key services, NextGenFDI will make it even more easier for innovative and high-tech companies from around the world to relocate to the UAE, which continues to demonstrate its commercial appeal as a hub for global businesses."



Morocco, Mauritania Discuss Building Internet Cable Crossing Southern Provinces

Morocco and Mauritania are in talks to set up an internet cable interconnection building on the inroads of Moov Mauritel, a subsidiary of Morocco's Maroc Telecom. Moroccan and Mauritanian media said the cable would be laid inland crossing the Sahara territory, offering Mauritania a second alternative besides the "African Coast to Europe (ACE)" cable. The new interconnection would boost internet speed in the vast west African country of about 4 million people. The cable will be over 1000 km long stretching from Morocco's southern Saharan regions to Mauritania while crossing the Guerguarat border post. Mauritania sees economic benefits from Morocco's move to secure the Guerguarat border crossing in late 2020 from Polisario banditry. Besides steady, peaceful and uninterrupted flow of goods, now better internet services are insight.

Egypt on Its Way to Becoming Regional Center for Digital Services

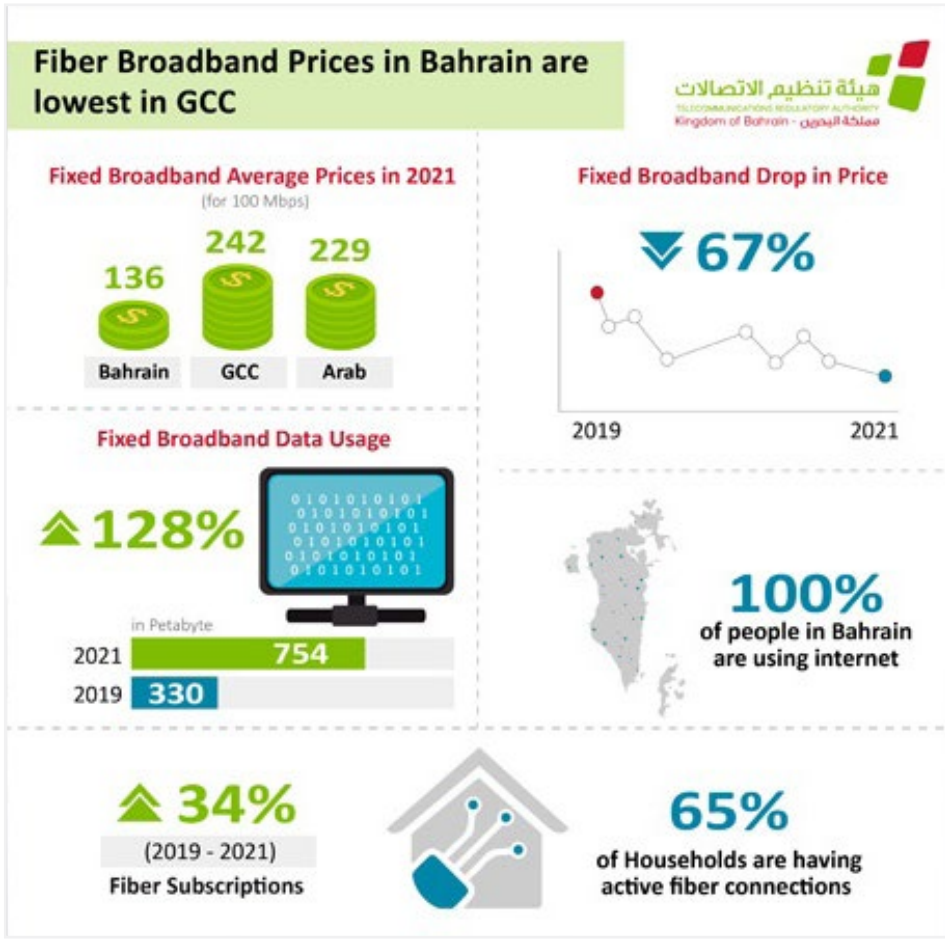
Chairperson of the Board of Directors of the General Division for Communications, Electronic Payments, and Financial Services at the Federation of Egyptian Chambers of Commerce in Egypt (FEDCOC) — praised the political leadership's role in transforming Egypt into a regional center for digital services. He also hailed the efforts of President Abdel Fattah Al-Sisi in inviting international companies to establish a presence in Egypt, along with fostering local manufacturing and localizing industry. This was evident in his continuous directives to the government, in addition to his sponsorship and adoption of the 'Egypt Manufactures Electronics Initiative.' Said added that the unprecedented investment incentives and tax and customs exemptions on production components and raw materials prompted two of the largest international companies — Nokia and Vivo — to manufacture their products in Egypt, which will generate job opportunities for Egyptians, which the Ministry of Communications and Information Technology qualified after creating a new promising generation of skilled workers. He explained that the localization of the electronics industry and its supplies is among the priorities of the state and the ministry, stressing that manufacturing about 1.5m mobile phones in Egypt annually will lead to reducing shipping costs and imports for these strategic products for citizens, in addition to preserving the country's stock of USD. Said also pointed out that Egypt is a promising and large market that boast 100 million mobile phone users. He explained that the volume of investments in the mobile market in Egypt exceeds EGP 100bn annually, and the total value of sales of smart phones is about EGP 40bn per year. Furthermore, he said that the mobile phone market witnessed a major slow-down over the last period, as imports declined due to several global crises He stressed that the policies of international companies have changed in favor of making Egypt an export hub to Africa, which has about 1.5 billion consumers. Additionally, Said indicated that a number of other international companies will soon begin manufacturing in Egypt, pointing out that the state plans to transform Egypt into a major manufacturing hub for electronic products and home appliances.

PTA, A4A1 Workshop Underscores Importance of Gender Inclusion in ICTs

The Pakistan Telecommunication Authority (PTA) in collaboration with Alliance for Affordable Internet (A4AI) organized a Digital Gender Sensitization workshop that focused on gender inclusion in ICTs and facilitating digital empowerment of women in Pakistan. Additional Secretary (Incharge) IT&T Mohsin Mushtaq was the chief guest on this occasion whereas Chairman PTA, Major General (R) Amir Azeem Bajwa; Member C&E PTA Dr. Khawar Sidique Khokhar, senior officers from Frequency Allocation Board (FAB), CEOs of USF, Ignite, Jazz and representatives from mobile operators & members of international organizations, and civil society attended the event, a news release said. Speaking at the event, the chief guest appreciated PTA's proactive and inclusive approach towards digital gender connectivity. He said that Government of Pakistan and Ministry of Information Technology and Telecommunication (MoIT&T) were engaging with global and regional organizations for improving digital gender gap in Pakistan. At the event, Chairman PTA said that PTA was committed to ensure access to all and improve digital gender inclusion in ICTs in Pakistan. It is striving to develop a digital strategy that brings together key stakeholders of gender mainstreaming in Pakistan. The highlight of the event was the session on 'Women Leading the Tech' chaired by Chairperson Competition Commission of Pakistan, Rahat Kunain Hassan and eminent Pakistani female leaders as panelists. The panelists included: Founder & CEO, Katalyst Labs, Jehan Ara; Country Head – Code for Pakistan, Samina Rizwan; Executive Director, Pakistan Alliance for Girls Education (PAGE), Ms. Fajer Rabia Pasha and CEO National Forum of Women with Disabilities in Pakistan (NFWWD), Abia Akram. The panelists stressed on creating conducive environment that give women the support to excel and consequently propel the growth of the entire technology ecosystem. UNESCO Consultant presented on robust strategy development for digital inclusion. During the workshop, emphasis was given on inclusive policy reforms and multisectoral collaborations towards the objective of bridging the digital gender divide.

Bahrain enjoys lowest fiber broadband Prices in GCC

Fiber broadband plans offered by the operators in Bahrain have the lowest charges in the GCC, says a study conducted by Bahrain's Telecommunications Regulatory Authority (TRA). In addition, Bahrain's telecom operators compete on a regional and Arab level for mobile services, particularly in charges of the high-usage packages. Bahrain's fixed broadband charges for high speeds have been reduced by 67% between 2019 and 2021, according to the study. With an average mobile broadband usage at 28GB per month, at high usage levels of 10GB and more, Bahrain is more competitive than other GCC countries. As a result of the reduced broadband prices and the continued fiber rollout, the number of homes with fiber broadband has increased substantially. Based on the latest market data, 65% of households in Bahrain have fiber broadband services, compared to 42% in 2019, noting an increase of subscriptions by 34%. Additionally, TRA's latest Residential Market Survey report on telecoms services shows that 100% of respondents have reported using the Internet, indicating Bahrain's growing affordability of Internet services. Commenting on the findings of the study, TRA's General Director, Philip Marnick stated: "We all want good quality broadband at an affordable price. It is essential for the TRA to be able to monitor price changes and analyze the impact of competition on the telecom services we all use. "The



TRA's role in boosting competition is evident in the reduction of charges, through working on significant projects, such as the establishment of the National Broadband Network, Bahrain Network (BNET) in 2019 – so all fiber in the kingdom is from the same provider – which offers a variety of fiber products to the operators in Bahrain, which enables them to provide advanced broadband services at competitive prices."

National Cybersecurity Authority Launches CyberIC to Develop Sector in Saudi Arabia

The CyberIC program is designed to develop the skills of more than 10,000 Saudis and stimulate the wider domestic cybersecurity sector in line with international best practices. The first phase of the program includes a number of initiatives, such as providing training for employees of national authorities working in cybersecurity and related fields and accelerating cybersecurity activities to stimulate the sector. It will also include the launch of the second version of the cybersecurity challenge and offer programs for chief information security officers in cooperation with prestigious international universities in the field. To ensure participants are ready to confront the most significant cybersecurity challenges, the program offers courses that include virtual exercises that simulate real cyberattacks and incidents. The program is based on six main tracks: innovation and entrepreneurship, cybersecurity officers, cybersecurity trainers, fresh graduates, cybersecurity specialists and law enforcement agencies. It will support the growth of the cybersecurity industry in the Kingdom by helping more than 60 national cybersecurity startups. Forty have already been launched, while the other 20 will be established through the cybersecurity challenge.

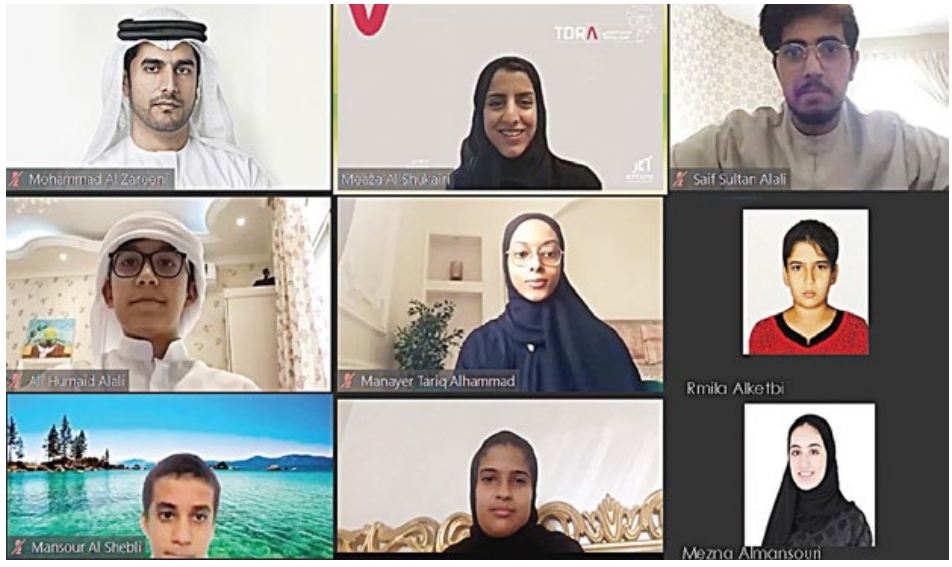
PEACE Cable Completes Connection of Pakistan-Egypt Segment to Connect to Marsielle, France

The Pakistani-Egypt segment of the Pakistan and East Africa Connecting Europe (PEACE) subsea cable has achieved its final splice, allowing for connectivity from Karachi, Pakistan to Marseille, France. PEACE Cable International Network confirmed the completion of the construction and laying of the subsea cable with network service provider Cybernet, to connect Karachi with Zafarana, Egypt. In total this segment spans a total length of 5,800km (3,600 miles). The cable lands at Interxion's Marseille MRS2 data center for its landing station architecture, with the French city a strategic location for Europe's subsea cables, with PEACE becoming the 15th to connect to the region. Cybernet is the landing partner for the PEACE subsea cable and through its Cable Landing Station in Karachi, it will be able to enable connectivity across Pakistan via the company's fiber network. "With Cybernet, we will bring much-needed redundancy to Pakistan's Internet backbone and provide users with high-speed traffic to meet the rapidly growing demand for internet access in different types of digital scenarios in Pakistan," said PEACE Cable COO Sun Xiaohua. Cybernet COO Maroof Ali Shahani added: "We have completed a key segment of the PEACE submarine cable system, from Pakistan to France, which will have a tremendous impact on the digital landscape in Pakistan. "The cable system will help the nation stay connected with the world in an ever-changing technological landscape." The cable has a capacity of up to 96Tbps for the Pakistan-Egypt segment, and even more at 192Tbps for the Mediterranean segment from Egypt to France. PEACE is operated by Hong-Kong based telecoms company PCCW Global and is 15,000km long (9,320m). It runs south from Pakistan to Kenya and the Seychelles with plans to land in South Africa. The subsea cable which started development in 2017 offers a low-latency route from Asia into Africa and Europe and has the capability to transmit capacity of 16Tbps per fiber pair. PEACE claims that the new subsea cable will reduce latency between Pakistan and France to 92 milliseconds. Earlier this year it was announced that the PEACE cable would be extended out east to Singapore. The 6,500km extension, announced in partnership with Ooredoo Maldives, will land in Kulhudhufushi, the Maldives, with potential landings points in Indonesia, Malaysia, Thailand, Bangladesh, and Sri Lanka.

Egypt to Manufacture Nokia Mobile Phones

Nokia mobile phones are to be manufactured in Egypt following an agreement signed last week between HMD International, which owns the Nokia brand and Etisal Company for Advances Industries (EAI). The agreement which aims to produce one million mobile devices of different models within the current year was signed between Tamer El-Gamal, General Manager of HMD in Egypt and Ahmed Abu Auf, the Managing Director of EAI and the Egyptian Ministry of Communications and Information Technology. Production is expected to double in the coming period. According to a statement by the Communications Ministry, HMD will use EAI's factory in Sixth of October City to produce both smart phones and older "dumb" phones, without disclosing whether the products will be exported or sold domestically. As part of the agreement HMD will also provide the factory with raw materials, technical support, inspection and testing tools, and calibration equipment. The company will also provide technical and technological training the statement said. After Samsung, Nokia is the most popular mobile phone brand in Egypt. In 2019 Telecom Egypt signed a memorandum of understanding (MoU) with the Finnish company to provide Internet of Things (IoT) services to businesses in Egypt.

TDRA Concludes Its Virtual Camp on Metaverse



The Telecommunications & Digital Government Regulatory Authority (TDRA) concluded the 8th TDRA Virtual Camp, marking a unique experience for participant students by giving them a glimpse into the infinite possibilities of the metaverse, the future of the Internet in the years to come. The Camp saw the participation of 3026 UAE-national and resident students, of whom 47% were females and 53% males. The closing ceremony was convened virtually by TDRA in the presence of Eng. Mohammad al-Zarooni, TDRA's Deputy Director General of the Information & Digital Government Sector, TDRA's staff, and students along with their parents. Over the course of two weeks, each student performed 18 tasks in the General Track (age group 7-12), and 15 tasks for each student in the General Track (age group 13-18). The students also implemented 76 projects in the Advanced Track (age group 13-18). During the Camp, students availed themselves of 175 hours of technical support, 86 training videos and 14 hours of live streaming. In his speech at the beginning of the ceremony, Eng. Mohammad al-Zarooni, TDRA's Deputy Director General of the Information & Digital Government Sector, congratulated the Camp's team and the participants on the success of the 2022 edition of the TDRA Virtual Camp, adding: "This Camp has become a frequent milestone on the path of shaping the future driven by the spirit of innovation that is evident in the creativity of our student sons and daughters. This year's edition was an extension of what has been achieved in preceding years, but it was bolder in delving into the world of the future. This has been reflected by the application of virtual reality based on the promising metaverse experience, which will be a feature of the world over the next few years." H.E. Mr. al-Zarooni stressed the significance of the experience lived by the participant students, saying: "You lived a unique experience, but let me remind you of the goals for which the TDRA Camp was founded." We belong to a country heading fastly and firmly to the future. We are well aware that for us to succeed in our future projects we have to rely on you; you who belong to a generation known for its openness to techniques which were unknown previously. Your generation enjoys a multitude of knowledge tools and insights into the vast world, and as such, we would like you to become your country's ambassadors in the future world." The closing ceremony featured the honoring of both Advanced and General Track winners. In the Advanced Track, students Eithar Mohammed al-Khazaleh and Noora Saeed al-Ketbi won the gold prize, where students Aysha Saif al-Kaabi and Abdallah Yousef Khaleel won the silver prize, and students Ghala Abdulla al-Hosani and Ismael Ashraf Khalil won the bronze prize. As for the General Track, students Ali Humaid al-Loughani, Anisa Mubarak al-Ketbi and Zayed Salem al-Kalbani. During the ceremony, the winning students provided a detailed description of their projects. TDRA then thanked parents of the students for their remarkable efforts in helping their children and bringing the Camp to a success. The TDRA Virtual Camp in its 8th edition is a continuation of the successful sessions in the past, and a reflection of TDRA's commitment to its social responsibility towards Emirati students, by equipping them with the skills to lead in the adoption of future technologies (such as the smart city); skills to the safe use of technology and social media; and skills in design, arts and creativity, among others. The Camp has trained more than 21,000 students during its previous sessions, and saw some 15,000 ICT home labs.

Indian 5G Networks Expected to Launch in 13 Cities

Commercial 5G services are expected to be launched in India in an initial 13 cities, India Today has reported. The list of launch locations includes: Ahmedabad, Bengaluru, Chandigarh, Chennai, Delhi, Gandhinagar, Gurugram, Hyderabad, Jamnagar, Kolkata, Lucknow, Mumbai and Pune. While 5G services could go potentially live before the end of the month, the report notes that the government is keen to see 5G networks up and running to coincide with the start of the India Mobile Congress (IMC) event on 1 October. India completed its 5G spectrum auction earlier this month. The auction saw four bidders – Reliance Jio Infocomm (Jio), Bharti Airtel, Vodafone Idea (Vi) and Adani Data Networks – spend a total of INR1.5 trillion (USD18.97 billion) on frequencies in the 700MHz, 800MHz, 1800MHz, 2100MHz, 3.5GHz and 26GHz bands.

NuRAN Signs Contract with MTN for 500 Rural Sites in Sudan

NuRAN Wireless, a supplier of mobile and broadband wireless infrastructure solutions, has announced the signing of a definitive Network As A Service (NaaS) contract with MTN Sudan for the deployment of rural mobile infrastructure. Pursuant to the terms of the ten-year agreement, the parties intend to install a minimum of 500 rural networking sites in Sudan. The project will support 2G and 3G with variety of site categories to cover different population densities and coverage areas. The NuRAN NaaS model facilitates network expansion for mobile operators by managing and controlling the build, operation, and maintenance of cellular sites along with associated capital expenditures.

The sites are then monetized by providing connectivity on a paid for service basis. NuRAN, which now has 3,192 sites in five countries throughout Africa, expects to retain the ownership of the infrastructure after completion of the contract. 'This is another important milestone for NuRAN as we press ahead to our stated goal of having 10,000 sites under contract,' stated Francis Letourneau, CEO at NuRAN Wireless, adding: 'This contract also further solidifies our growing relationship with MTN as a key partner in bringing mobile connectivity to the people that need it the most. Mobile connectivity is a life blood to these communities and NuRAN is extremely proud to be at the center of bridging this important gap.'

MTN Finds Buyer for Afghanistan Unit, H1 Profit Jumps

MTN Group moved closer to achieving an ambition to exit markets in the Middle East after accepting an offer for its Afghanistan business, a revelation made during its H1 results statement where it recorded increases in revenue and profit. The move to divest MTN Afghanistan is part of a group strategy to focus on its operations in Africa which has been underway since 2020. MTN did not divulge the buyer, simply noting it had accepted a binding offer: Reuters reported this to be around $35 million. MTN noted since March 2020, when it started refocusing its business, ZAR15.8 billion ($976.5 million) had been raised from asset sales. This includes selling operating units and physical infrastructure. In a move which could yield further fundraising, MTN is in talks with investors over its soon-to-be spun-off financial technology business, a process it expects to be completed by the end of the year. MTN noted it made significant network investments during H1. CEO Ralph Mupita said it had accelerated these during the period, including buying 4G and 5G-suitable spectrum in South Africa and Nigeria. Operationally, the executive noted MTN had seen a "particularly strong" growth in data revenue during H1 highlighting increases in its units in Nigeria, Ghana, Cameroon and South Africa. He also pointed to a 31.5 per cent increase in transaction volume for its financial technology businesses, though added the "introduction of fintech taxes in some markets slowed revenue growth in Q2, but we remain encouraged by the ecosystem growth as users, agents and merchants continued to grow healthily during the period". For H1 the operator group's revenue was ZAR97.5 billion, up from ZAR86.7 billion, with profit attributable to equity holders of ZAR8 billion compared with ZAR2.7 billion in H1 2021.

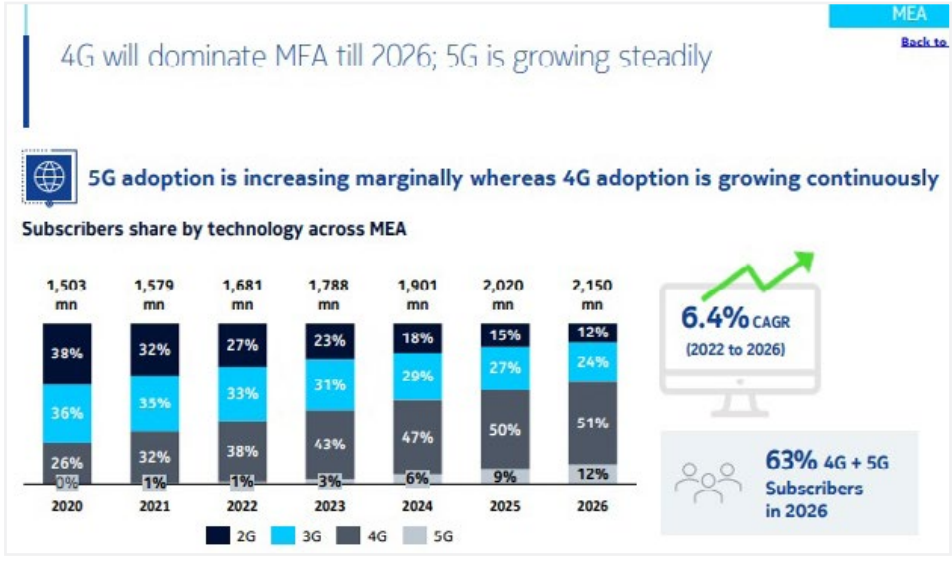
Saudi Telecom Company Tawal Eyes Expansion into Pakistan

Saudi telecom company Tawal KSA plans to expand operations into Pakistan, helping local companies expand their coverage into underserved areas. This was suggested when a high-level delegation from the company met with Federal Finance Minister Miftah Ismail in Islamabad. Tawal is a subsidiary of the Saudi Telecommunications Company (STC) - partially owned by the Saudi government, which owns a portfolio of over 15,500 telecom towers in the Kingdom. In a statement issued by the Finance Division after the meeting, Tawal KSA was represented by its Chief International Officer (CIO) Emmanuel Leonard, while the delegation also included Tawal Pakistan Country Manager Juan Pablo Sanchez, Tawal Pakistan Director and Country Representative in Pakistan Shah Faisal Safdar Khattak. Miftah was informed about the company's mission and operations to develop critical telecom infrastructure in Pakistan. Discussing Tawal's future services

after the full acquisition of operations in Pakistan, Leonard said that the company aims to allow mobile network operators in Pakistan to meet their increased coverage and capacity requirements for rapidly growing data demands. The Finance Minister assured the delegation that the government aims at provide every possible support for easing business operations and facilitating foreign direct investment in Pakistan. Ismail also appreciated Tawal's operations and its value and significance for the development of the telecom sector of Pakistan. Later, while speaking with SAMAA TV, the finance minister confirmed Tawal's expansion plans into Pakistan, noting that the Saudi firm had acquired a local firm to start Pakistan operations. He further disclosed that the firm will set up some 70-80 mobile telecommunication towers around the country for local telecommunication companies and that they plan to make massive investments.

5G Subscriptions to Reach 263 million in MEA By 2026

Nokia research forecasts 5G subscriptions to reach 263 million in the Middle East and Africa (MEA) region by 2026. The 5G subscription growth will primarily be in Gulf Cooperation Council (GCC) countries, including Saudi Arabia, the UAE, Qatar, Oman, Kuwait and Bahrain. Additionally, subscribers in South Africa, Nigeria and North African countries will increase adoption following the release of new spectrum. This trend is triggered by the increasing use of high-bandwidth consumer applications and industrial use cases. The Nokia MEA Broadband Index Report – I provides insight, data and analysis on mobile broadband subscribers, coverage, ARPU and traffic growth in the MEA region, as well its respective sub-regions: GCC, Southern Africa, North Africa, Middle East, and Central East West Africa. The report has been created based on Nokia's intelligence, as well as data from third-party sources, GlobalData and Tutela. In GCC countries, 5G subscriber base is expected to reach 64 percent of the total and data traffic likely to surpass 70 percent by 2026, according to the study. While 4G subscribers in the Southern Africa region are projected to reach 105 million (58 percent of total subscribers) by 2026, 5G will contribute more than one-fifth of data traffic in the same time-frame. North African operators have seen a high demand for mobile broadband and the region is expected to have a 20 percent increase in total subscribers by 2026, compared to 2022. In Central East West Africa, more than 60 percent of the total data traffic is currently carried by 4G. This traffic is expected to grow four times over the next four years. At the same time, 5G subscriptions are expected to account for nearly 10 percent of the total mobile subscribers in this period. The study also reveals that 5G and 4G together are expected to drive more than 90 percent of data traffic in MEA. Total data traffic is expected to increase significantly in the next four years with a compound annual growth rate of 35 percent. Mikko Lavanti, Head of Mobile Networks, Nokia MEA, said, "Globally, the pace of 5G network rollouts has surpassed 4G/LTE networks. Two years after the first LTE launch there were only 25 million subscriptions across 60 networks, while two years after the first 5G launch, 340 million subscriptions were registered across 155 networks. Similarly, in MEA, our MEA Broadband Index Report finds 40 percent year-on-year growth in 4G data traffic but a huge 350 percent year-on-year growth in 5G data traffic in 2021 alone. This trend in the region clearly indicates that there is a pressing need for the adoption and expansion of 5G networks across the region."



VEON's Banglalink Signs Tower Sharing Agreement in Bangladesh

VEON Ltd., a global digital operator that provides converged connectivity and services, today announces that its subsidiary Banglalink has reached an agreement with Bangladesh Telecommunications Company Limited (BTCL) for a tower sharing initiative. Kaan Terzioglu, CEO of VEON Group: "VEON's future centers around an asset-light business model that enables us to focus on providing our customers high-quality connectivity and world-class digital services. By reducing our direct ownership of capex-intensive tower infrastructure, we can focus on these high-growth digital services, delivering greater value to our shareholders and our customers. The tower sharing agreement reached with BTCL represents another step towards implementing this strategy and follows similar deals in other operating countries. Under the agreement, BTCL will share its tower infrastructures with Banglalink. The initiative will enhance Banglalink's quality of services further by supporting its 4G expansion drive, ensuring energy-efficient operations and optimizing the use of Bangladesh's national resources. "We always welcome network sharing opportunities to serve our customers better and ensure proper utilization of resources and infrastructures." Erik Aas, Chief Executive Officer, Banglalink said, "In the last year, we have added more than 3300 4G base stations to our network; many of these are based on shared infrastructure. We will continue to expand the network, and our partnership with BTCL will give a fresh impetus to this endeavor. We are looking forward to further sharing opportunities of passive and active telecom infrastructure in the future." "We are happy to enter into this partnership with Banglalink. Since last year, we have been sharing our fibers with Banglalink, achieving positive results for us both." Stated Dr. Md. Rafiqul Matin, Managing Director, BTCL. "As a country, we have reached an impasse where infrastructure sharing can be an effective way to tackle national and global challenges. This initiative is an example of how two organizations can benefit from partnering."

Communications Ministry to Launch Iraqi Satellite

The Iraqi Ministry of Communications revealed on Sunday new steps taken to launch the first Iraqi satellite, according to the state news agency (INA). The spokesperson of the Ministry of Communications, Adel Al-Araji, explained that the Iraqi ministry is in the process of contracting with a consulting company to build the satellite, INA reported. Araji elaborated that the Iraqi government is in contact with a company to determine the requirements and technical specifications for the satellite, adding that the project will not cost the Iraqi Budget any amounts, INA mentioned. In regards to the reasons behind the suspension of the Iraqi satellite project ten years ago, Araji explained that it is an ambitious project that stopped since 2012, and it passed through circumstances where the terrorist group of ISIS constituted destabilization in the country, in addition to the lack of a budget. Araji clarified that the government has not allocated a budget for this project since 2013. The Iraqi Ministry of Communications announced in April 2021 an agreement to build the first satellite for Iraq.

Saudi Vision 2030 Offers Huge Scope for Pakistani IT Sector: Report

In line with the Saudi Arabia's plan to modernize its economy under the mega-investment plan and Vision 2030 program, Riyadh is working to develop new cities in the Kingdom that offer "huge investment opportunities" for Pakistani companies especially IT companies, Arab News reported. National Data Consultant (NdcTech) chief executive Ammara Masood said: "The banking and financial sector in KSA has been growing at an accelerated pace with numerous players launching their products including traditional and digital banks, fintech companies, and payment service providers." The chief executive of a top Pakistani digital banking implementation service provider added that NdcTech – which earlier this year was acquired by IT giant Systems Limited – is also planning to expand in the Gulf market, as it "foresees a great demand." Masood said: "We are also scaling up operations in the UAE and different GCC countries in the banking sector. These markets are highly competitive, with other implementation partners operating in the region." She further added in order to enhance the export of services in the coming years, Pakistani IT companies are also keen on exploring the opportunities emerging in the Kingdom and other Gulf countries. The IT exports of Pakistan have been growing after the coronavirus pandemic. The country's IT and IT-enabled exports hit their record high of $2.6 billion in the fiscal year 2021-22, according to data released by the State Bank of Pakistan. Vision 2030 – a strategic framework – is an effort to pivot Saudi Arabia away from oil dependency and establish it as a global investment powerhouse with a sophisticated digital infrastructure. The Kingdom is estimated to have mobilized around $500 billion to achieve its goals, including the development of new cities. NdcTech has been operating in Saudi Arabia's financial sector for years, where it currently works with 12 banks and financial institutions. As a partner of Temenos, a Geneva-based company specializing in enterprise software for banks, with whom it launched a digital lending service for the Saudi Tourism Development Fund in October last year.

VEON Receives USD682m for Sale of Djezzy Stake

Multinational telecoms group VEON announced on 5 August that it has received USD682 million following the sale of its stake in Algerian mobile operator Djezzy to the Algerian government's National Investment Fund (Fonds National d'Investissement, FNI). VEON confirmed that the announcement represents the completion of a transaction disclosed on 1 July 2021, when the Amsterdam-headquartered group exercised its put option to sell FNI its entire 45.57% stake in Djezzy (registered as Optimum Telecom Algerie, owned via Omnium Telecom Algerie), raising the Fund's shareholding in the cellco from 51% to 96.57%. VEON CEO Kaan Terzioglu commented: 'Today, we completed the sale of our share in Djezzy to our partner FNI, marking an important step in our strategy of streamlining VEON's portfolio. Under the leadership of Matthieu Galvani, the Djezzy team have built an exemplary telecommunications operator, which will continue to contribute to serve Algeria with best-in-class services. I would like to thank to the team for their hard work, and to the FNI for a successful partnership. VEON will continue to focus on large-scale, emerging markets where we can generate value with our digital operator model.' The company's statement added: 'The cash received from this transaction further strengthens VEON Group's liquidity position. As of 4 August 2022, VEON Group's total cash and deposits have increased to USD3.1 billion, including USD2.5 billion equivalent of USD- and EUR-denominated cash and deposits held by the headquarters in Amsterdam.'

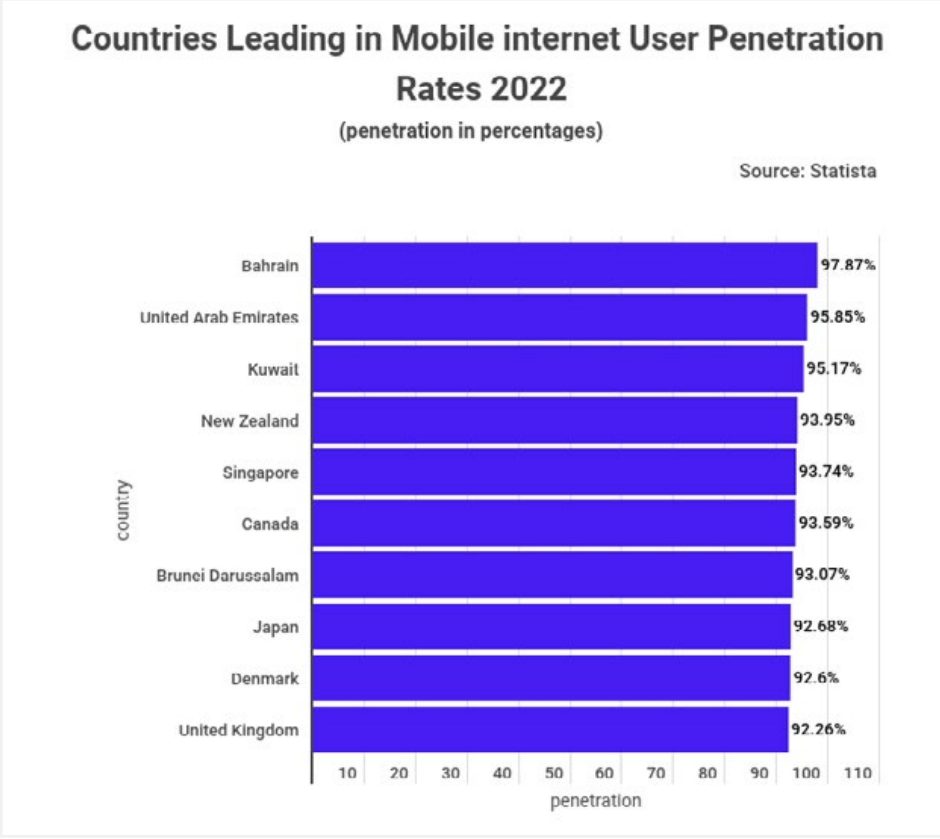
Pakistan Makes a Record Earnings of US$2615 Million from IT Service Exports in 2021-22

Pakistan likes its neighboring country India has always been famous for its IT services around the world. Low costs and better human resources push international companies to outsource all of their IT services to developing countries. For this reason, Pakistan has seen massive growth in its IT services exports over the years. Despite the heavy economic recession, this fiscal year 2021-2022 was no different and the IT service export Industry made a record total revenue of around $2,615 million. Now that sure is great numbers, but what is even better about it is the fact that this is a 24% increase from last year's IT service exports, where the numbers remained at $2,107 million in 2021-21. Pakistan Bureau of Statistics (PBS) published detailed findings about the IT industry and the amount of money each sub-sector namely (Computer Services, IT Services, Telecom Services and Software Services) made in the IT Export industry. Let's discuss each one of them and also break them down in detailed statistics. The Pakistan IT export industry performed exceptionally well in computer services, the computer service industry saw an exceptional 26.40 percent growth, overall, the industry grew from a total of $1,666.310 million last fiscal year to $2,106.145 this year. Exports of software consultancy services were the most prominent in computer services, witnessing a rise of 43.43 percent, rising from $554.612 million to $795.480 million. Hardware consultancy services saw a whopping 429.58 percent rise, growing from $0.551 million to $2.918 million. With the passage of time software has become a significant field, it's almost a gold mine and a brilliant opportunity for IT exporting countries like Pakistan. Pakistan's IT export industry saw a growth of 34.87 percent in software-related services this fiscal year. Last year the country made $417.485 million from software services, the amount grew to $563.071 million this time, which is a good increase nonetheless. Amongst the computer software service industry, exports of repair and maintenance services actually decreased from $1.446 million last year to $0.662 million this fiscal year. Other computer software services, however, saw a good 7.25 percent increase and rose from $693 million to $743.230 million. IT services have been in high demand lately, and Pakistan surely is capturing it, IT service exports from Pakistan saw an impressive 31.08 percent increase, going up from $3.990 million to $5.230 million. News Agency services that come under the IT sector are also highly demanded, and increased by nearly 50 percent, going from $2.304 million to $3.448 million. Other smaller or unrelated Information Technology services also grew by a small 5.69 percent, going from $1.686 million to $1.782 million. While Pakistan's local telecom industry might be in deep waters, telecom service exporters seem to be doing pretty well with an increase of 15.30 percent. The telecommunication export service industry went from $437.500 million in 2021 to $504.440 in this fiscal year. Infamous call center services experienced the highest growth of 39.43 percent, going from $154.554 million to $215.501 million. Other telecommunication services grew by a small 2.12 percent and their revenue also went up from $282.946 million to $288.939 during this fiscal year. Despite going through tough financial and political circumstances, the IT export industry not just thrived but also grew by massive percentages. A major reason for this is the fact that the industry is completely dependent on other economies for work and revenue thus making this industry a gold mine for any unstable or developing economy. An IT export industry not only stays unaffected by political and financial conditions but also helps bring massive foreign currency into the country, thus improving reserves. In a nutshell, you could think of the IT export industry as a great shield against all circumstances, therefore governments should not only actively invest in the industry but also try and increase IT influx in the country.

Turkcell Maintains Strong Financial Performance in Q2

Turkish telecoms group Turkcell has reported a continuation of strong financial performance trends in the second quarter of 2022, with group revenues leaping 46.0% year-on-year to TRY12.477 billion (USD692 million) driven by accelerated ARPU and strong subscription net additions at its core Turkish division, supported by the contribution of overseas operations and its 'techfin' business. Consolidated EBITDA rose 45.1% y-o-y to TRY5.030 billion in the three months ending 30 June 2022, giving an EBITDA margin of 40.3% (comparable to 40.5% a year earlier) and quarterly operating profit (EBIT) climbed 48.0% y-o-y to TRY2.550 billion (an EBIT margin of 20.4%, compared to 20.2% in 2Q21). Net income in 2Q22 improved by 67.0% y-o-y to TRY1.858 billion. In Turkey, Turkcell's post-paid mobile subscriptions excluding M2M reached 20.9 million at end-June 2022, up from 19.9 million twelve months before, while the pre-paid total stood at 12.1 million (up from 11.7 million). Turkish fiber broadband subscriptions climbed to 1.996 million at mid-2022, up from 1.754 million in the same period of 2021, while ADSL subscriptions also grew, from 726,000 to 741,000. The operator also reported deploying 284,000 new fiber homepasses in 2Q22.

Bahrain Leads the World's Mobile Internet Adoption with a User Penetration Rate of 97.87%



According to a StockApps data analysis, Bahrain is leading the world in mobile internet user penetration. The site has presented data showing that Bahrain has a 97.87% mobile internet penetration rate, which is the largest globally. "The Bahraini government has been investing heavily in infrastructure and technology, which has made it easier for people to get online," says StockApps' financial expert Edith Reads. She adds, "The country has an expansive National Broadband Network enabling the provision of affordable high-speed broadband internet services to people and business alike."

Countries Leading In Mobile Internet Penetration

The United Arab Emirates (UAE) has the world's second highest mobile internet penetration rate. 95.86% of the UAE's population uses this resource for their online activity. Similarly, Kuwait is a small country with a big appetite for mobile internet. It ranks third globally in terms of mobile internet usage. Like the other two, it has an extensive mobile internet infrastructure.

G7 Nations are Lagging in Adoption

The G7 nations are lagging in their internet penetration rates. Of the top ten countries in the world, only three are G7 members. With a 93.59% penetration rate, Canada was the best place in the sixth position. Japan (8th) has a penetration of 92.68%, while the UK (10th) has 92.26% penetration.

The US Ranks 44th in Mobile Internet Penetration

The U.S ranks surprisingly low in terms of mobile internet penetration. At 84.37%, it ranks a disappointing 44th out of all the countries in the world. This low ranking is partly due to the US's high cost of mobile data. According to a recent study, the average price of mobile data in the US is nearly twice as high as the OECD average. Whereas Americans pay an average of $61.07 for monthly broadband access, the average for the OECD countries is $37.78. In addition, the US has large areas of rural territory where mobile coverage is spotty at best. The full story and statistics can be found here: Bahrain Leads the World's Mobile Internet Adoption With a User Penetration Rate of 97.87%

Special Telecom Packages Under Job Security System

The Telecommunications Regulatory Authority (TRA), in cooperation with service providers, has provided special facilities to citizens whose services have been terminated for reasons beyond their control, as part of the government's efforts to provide social protection under the job security system. Omantel has provided a special package to its subscribers of this category in both postpaid and prepaid services, which includes a 50-per cent discount on the monthly bills and a postponement of the claim for payment of any dues for previous bills or instalments resulting from for six months. No fines will be imposed for cancelling the contract or reducing the subscription package in any of the available packages. There will also be a cashback on Hayyak packages, which will be valid for 28 days. The job security system, launched in 2020, is a national project to provide social protection for citizens whose services are terminated from work for reasons beyond their control. The authority's efforts in this field stem from its social responsibility towards this category and its regulatory role in the field of telecommunications, TRA said.

Sirar by stc and Saudi Fintech Sign an Agreement to Support Small and Medium Enterprises, Financial Technology Companies and Entrepreneurs

Under the patronage of the Governor of the Digital Government Authority, Eng. Ahmed bin Muhammad Al-Suwayan, the Advanced Company for Technology and Cyber Security "sirar by stc" signed an agreement with "Fintech Saudi Arabia", in the presence of the Undersecretary of the Ministry of Communications and Information Technology for Technology, Mr. Ibrahim Al-Nasser, and the Deputy Governor of the Communications and Information Technology Commission for the Information Technology Sector and Emerging Technologies, Mr. Raed Al-Fayez, Deputy Governor of the Saudi Central Bank for Development and Technology, Mr. Ziad Al-Yousef, and Mr. Yazid Al-Damiji, Deputy Governor of the Capital Market Authority for Strategic and International Affairs. The agreement was signed by the CEO of the Advanced Technology and Cyber Security Company "sirar by stc", Eng. Fahad Al-Jutaili, and the designated General Manager of the Saudi Fintech Initiative, Mr. Nizar Al-Haider. Under the agreement, "sirar by stc" will offer a package reduced by up to 60% for the digital signature service that will benefit small and medium enterprises, financial technology companies and entrepreneurs. The agreement embodies the integration between Sirar by stc, the Digital Government Authority and the Saudi Central Bank, to support small and medium enterprises, financial technology companies and entrepreneurs to achieve innovation and diversity in products and services through digital platforms. Sirar by stc CEO Fahad Al-Jutaili confirmed that this agreement comes within the efforts of Sirar by stc to support and enable the Fintech sector in the Kingdom of Saudi Arabia, which contributes to achieving the goals and plans of digital transformation in the Kingdom. It is also worth noting that the digital signature service is a service that enables beneficiaries to digitally sign documents from anywhere and at any time while ensuring reliability, verification and security.

Syria and China Sign USD30m Deal for Supply of Equipment

The governments of Syria and China have signed an agreement for the supply of telecommunication equipment and software for state-owned telco Syrian Telecom (ST). Syria's Ministry of Communication and Technology (MoCT) noted in a statement that the USD30 million project would look to restore communications systems that have been destroyed by opposition forces during the country's ongoing civil war. The works are to be completed in two phases with each covering four governorates.

TRA Issues Advisory on Wiring for Internet Services

The Telecommunications Regulatory Authority (TRA) has published an advisory video on setting up internal communications in buildings. Ibrahim al Maawali from the Technical Specifications Department said that in every building there are infrastructures that support telecom services, which in turn facilitate the delivery of telecom services to those buildings by telecom service providers. He explained that the main principles of connections are as follows:

1) Equipping the building with wall wiring to the main distribution box in the middle on the ground floor

The extension of the cables be continuous without intermediate connections and take into account the sizes of the cable passage pipes with future needs.

Separate the path of any communication cable inside the building from the electrical cables at an appropriate distance according to the electrical voltage.

Do not install communication sockets in a place that may be exposed to moisture, dust, or extreme heat.

Not to place communication sockets in a place less than 30 cm above the floor surface.

For single-story residential buildings, the following is recommended:

1) Extension of Class VI copper cabling to connect the main distribution box to all telecommunication sockets through cabling ducts.

2) Provide copper cables from the main box for each wireless network device (WiFi).

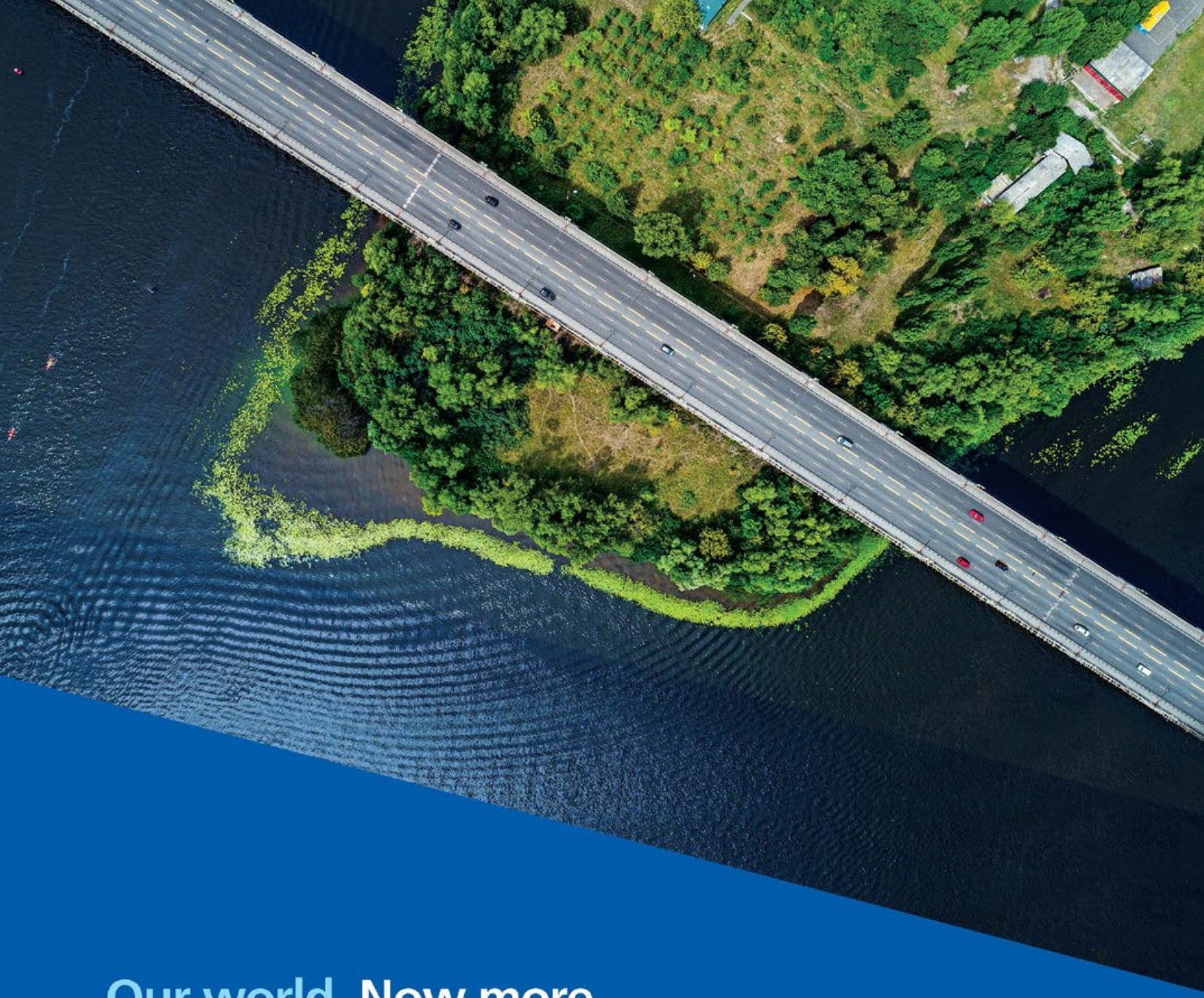
As for multi-story residential buildings, they must:

Provide the main distributor box on the ground floor linked to rising channels with the floor distribution boxes on each floor.

Provide a distribution box in each unit on the one floor with the provision of cable passage channels

Third: Commercial Buildings:

A communication room must be provided in the commercial building as an alternative to the main distribution box.



Our world. Now more
connected than ever.
Your world.

عالمنا. تواصل أكثر
من أي وقت مضى.
عالمكم.

عرب سات
ARABSAT
عالمنا... عالمكم.
Our world. Your world.

www.arabsat.com

SATELLITE NEWS

New Malaysian Satellite Enters Commercial Service

MEASAT-3d, described by Malaysian operator MEASAT as its latest and most advanced satellite, has now entered commercial service, after its handover by Airbus Defence and Space. At the time, the launch of MEASAT-3d took place on 22 June 2022 from Kourou, French Guiana. In orbit testing was successfully completed a month later, ahead of schedule. MEASAT-3d, a multi-mission satellite with a planned lifespan of more than 18 years, carries C-band and Ku-band payloads for video and direct-to-home services and a high-throughput multiple spot beam Ka-band payload optimized to deliver high-speed broadband internet communications for Malaysia; this will include users in the most remote areas of the country. The satellite also hosts a Q/V band payload, described as the first of its kind in the Asia-Pacific region, allowing the satellite to study radio frequency propagation effects in high rainfall regions like Malaysia, to enable the design of its next generation satellites. In addition, MEASAT-3d carries a hosted payload for Korean satellite communication operator KTSAT related to airline flight safety. "With this, MEASAT-3d is ready to support the Malaysian Government's National Digital Network (JENDELA) target to achieve 100% internet coverage by 2025, as well as our clients' plans to expand service offerings and improve customer experience," said Yau Chyong Lim, Chief Operating Officer, MEASAT.

SpaceX Starlink Satellite Broadband Internet is Now Available in 36 Countries

Recently, SpaceX CEO Elon Musk announced on Twitter that Starlink satellite broadband internet is now available in 36 countries around the globe. He shared the link to the map which shows the current and future availability of Starlink in any region around the globe. SpaceX has added 22 countries to the supported list in the last ~12 months. In August of 2021, we posted a list of 14 supported countries only which has now grown to 36. However, this is just a start as the region support map on the Starlink website shows a huge number of countries where the satellite broadband service is coming next year.

Viasat's Satellite Internet Helps Reduce Brazil's Digital Gap

Viasat, Inc, a global communications company, has reached the 50,000 sites mark in Brazil, helping to close the country's digital gap through the provision of high-speed satellite internet across the country. This achievement, combined with the introduction of its Brazil brand, further fuels Viasat's in-market commitment and investment. The company, operating in Brazil since 2018, has become the first internet service provider (ISP) to offer residential connectivity in 100% of the country. Internet via satellite can reach more remote regions even where other ISPs cannot, creating economic opportunities for businesses and communities that previously did not have access to reliable and high-quality internet. Viasat's Internet services have also enabled people to work remotely from their homes, access online entertainment, stay in touch with their loved ones, and more, even in regions far from commercial centers. The company's portfolio of internet services offered in Brazil includes residential, business and the Federal Government's Wi-Fi Brasil program in partnership with Telebras. Viasat's impact across Brazil: In partnership with Telebras, through the SGDC-1 satellite Viasat has connected government agencies and millions of students through the Wi-Fi Brasil program resulting in more than 20,000 internet access points, including 10,000 points located in rural and indigenous schools, health posts, public service facilities, non-profit organizations and more. As a result, more than five million students who previously lacked internet in these rural schools and indigenous communities can now benefit from online access. Together, Viasat, Telebras and the Wi-Fi Brasil program have boosted the social and digital inclusion of more than nine million Brazilians through internet access points installed in 3,055 cities. "Surpassing 50,000 sites since becoming Brazil's first and only nationwide residential internet service provider 18 months ago is a testament of our growth in the Brazilian market. To further drive our commitment across Brazil, we are also introducing a localized Viasat brand that includes more vibrant colors which reflects the essence of Brazilian culture. These achievements combined with our collaboration with Telebras and the Wi-Fi Brasil program demonstrate our investment across Brazil to help reduce the country's digital gap and create economic opportunities by providing many Brazilians with the ability to use the internet, many for the first time," says Leandro Gaunszer, Managing Director of Viasat Brazil. While Viasat's customers are located throughout the country, 33% of its customers are in the Northeast, followed by 25% in the North and 21% in the Southeast. In terms of consumption habits, 27% of Viasat customers are using its satellite internet service to access and send messages on social networks such as WhatsApp, Facebook and Tik Tok, followed by 21% of customers using the service to access video and streaming services including YouTube and Netflix. Finally, 16% of customers use Viasat's service for browsing.

Swiss Company Providing Internet Services Through Azerbaijani Satellite

Ministry of Digital Development and Transportation of Azerbaijan and the Swiss Signalhorn company have reached an agreement on cooperation, Trend reports via the Azerbaijani Ministry of Digital Development and Transportation. In accordance with the agreement, Signalhorn started to provide internet services to cruise liners in the Mediterranean via the Azerbaijan's Azerspace-1 satellite. "Improving the broadband capabilities of Azerkosmos OJSC is one of the important parts of the needs of global satellite communications market. Currently Azerspace-1 and Azerspace-2 satellites provide reliable and stable internet services on ships in the Caspian, Black and Azov Seas, on the Volga and the east of the Mediterranean Sea," the ministry said.

Viasat Selected by European Space Agency to Conduct Multi-Layered SATCOM Study

Viasat UK Ltd., a subsidiary of global communications company Viasat Inc. (NASDAQ: VSAT), today announced it was selected by the European Space Agency (ESA) to conduct a multi-layered Satellite Communication (SATCOM) study focused on evaluating the use cases, market segments and technical aspects of these future systems, which will be comprised of networks that span multiple orbital types including Geostationary Equatorial Orbit (GEO), Medium Earth Orbit (MEO), Low Earth Orbit (LEO), High Altitude Platform Systems (HAPS) and others, as well as include various frequency bands, satellite operators and network designs. Multi-layered, hybrid networks are increasingly being explored as an enabler of enhanced communications agility and performance, as well as a provider of critical resilience to protect against potential disruptions or attacks. This new research, which will be conducted over the next year, will look to answer some fundamental questions around the future implementation and use of multi-layered networks. This includes examining the current technology trends and assessing different markets that would most benefit from multi-layered SATCOM system applications. Additionally, the research will analyze existing layered SATCOM networks to evaluate the approach, benefits and limitations for those market segment applications. The study will explore a system design that supports the full range of both current and future satellite service types, increased spectral efficiency, and interoperability. It will involve several tasks to assess the current market and technologies, develop system requirements and trade-off exercises, modelling and simulation, further analyses and provision of a future roadmap. "We are excited to collaborate with ESA on this research project to

further the collective understanding of multi-layered networks and how they can increase capability, resilience, and performance for end-users across commercial and government," said John Reeves, managing director of Viasat UK. "As a SATCOM provider serving multiple markets, we see tremendous potential in using multi-layered space networks for different sectors and mission use cases. Our work with ESA will consider all different types of orbital satellites, networks and frequency bands and ultimately provide recommendations to guide the formation, technical needs and use of these future multi-layered networks." This research program is expected to be completed in the second quarter of 2023 and could offer UK, European and allied nations important guidance on a pathway toward developing and harnessing the potential of resilient multi-layered SATCOM capabilities.

Province Invests in Satellite Internet

The government is helping homes and businesses get internet where there is no access to wired or wireless solutions. The Satellite Internet Service Rebate program announced that it will cover the cost of installing satellite internet equipment for eligible households or businesses, up to a maximum of $1,000. The rebate will be available to about 3,700 homes and businesses for which no other internet service solution has been found. "As our province continues to grow, important infrastructure like reliable high-speed internet is critical to our success," said Economic Development Minister Susan Corkum-Greek. "We want to foster growth and prosperity across Nova Scotia, and each new internet connection represents fewer barriers, faster business growth and more communities being able to connect." The government has invested $8.5 million in the Nova Scotia Internet Funding Trust for the program, as part of its commitment to extend internet to every household in Nova Scotia. The program, led by Develop Nova Scotia, will open on Tuesday, August 2. Nova Scotians should confirm they are eligible for the rebate before purchasing satellite equipment. They can confirm their eligibility by visiting https://internet.developns.ca/satellite and entering their home or business address. Once eligibility has been confirmed and the satellite service and equipment has been purchased, applications can be submitted electronically or by mail by the customer. Qualified satellite service providers for the program must meet or exceed the Canadian Radio-television and Telecommunications Committee minimum speed targets of 50 Mbps download / 10 Mbps upload. Currently, only Starlink has indicated it can meet or exceed these speeds, but if other satellite providers can meet these speeds, they may also be included in the program.

Smart and Omnispace Team Up for Satcom-Supported 5G in the Philippines

Philippines mobile operator Smart is collaborating with satellite operator Omnispace to explore and demonstrate the capabilities of space-based 5G communications using low earth orbit (LEO) satellites. It's a collaboration that the partners believe will be able to define use cases for the Philippine market. These use cases could include enabling 5G connectivity in remote areas, incorporating IoT and sensors for use in monitoring weather disturbances and natural calamities, and augmenting network coverage for disaster relief, as well as enabling maritime and telematics applications for vessels and equipment. Arvin L Siena, Head of Smart owner PLDT's Technology Strategy and Transformation Office, says, "This is also part of PLDT's broader initiatives to future-proof our services, including Smart 5G. This includes exploring opportunities to team up with companies like Omnispace to test the interoperability of our network with their 3GPP-compliant 5G non-terrestrial network (NTN), which will support the 5G ecosystem of the future." Having

launched Omnispace Spark-1 and Spark-2 in April and May, respectively, the company recently completed the deployment phase of Omnispace Spark. This program is the initial phase in the company's development and delivery of what it calls the world's first global 5G-capable satellite network. The Omnispace 5G NTN global network – the world's first 3GPP-compliant 5G NTN system – will interconnect with terrestrial or land-based mobile networks to serve mobile subscribers utilizing the company's 2GHz mobile satellite spectrum allocation and operating in 3GPP band n256.

Oneweb and Intelsat to Give Airlines Broadband

Satellite operators OneWeb and Intelsat have signed a global distribution partnership agreement to offer airlines inflight broadband. The partnership could potentially let Intelsat distribute OneWeb's low Earth orbit (LEO) satellite services to every airline in the world, coupled with Intelsat's inflight connectivity experience and existing geo-stationary (GEO) satellite service. In a release, the collaborators say they expect the multi-orbit solution to be in service by 2024. Jeff Sare, president of Intelsat's Commercial Aviation, said it will 'maximize brand affiliation' with passengers through 'next-generation onboard services' in a 'connected airline digitalization strategy.' It could also mean that airline passengers can make phone calls. "This is a watershed moment for the inflight connectivity market, and we're excited to work together with Intelsat to bring our multi-orbit solution to commercial aviation. We're committed to delivering the most differentiated and innovative solution for airlines," said Ben Griffin, OneWeb's vice president for Mobility Services. "We are proving that, through the power of partnership, a superior suite of multi-orbit capabilities can be offered to better serve the growing connectivity needs of the commercial aviation industry, delivering the highest value coupled with the lowest risk."

Telefónica Integrates Terrestrial 5G and LEO Satellites for Extensive IoT Reach

Telefónica is developing a portfolio of 5G narrowband internet of things (NB-IoT) services for enterprise users that enables widespread, reliable, continuous connectivity, even in the most remote areas, by integrating its terrestrial mobile infrastructure with the satellite coverage of a key partner. The Spanish telco has partnered with domestic satellite telecommunications operator Sateliot to test a connectivity service that will integrate Sateliot's satellite network with Telefónica Tech's current terrestrial NB-IoT networks for the delivery of IoT connectivity wherever needed – even at sea. The service is set up to work with existing NB-IoT devices and is expected to benefit enterprise users in sectors such as agriculture, shipping, livestock management and green (wind and solar) energy that have operations in remote areas. Telefónica's goal is to complement the value proposition of its Tech division with a global satellite service using low-earth orbit (LEO) constellations to provide 5G NB-IoT connectivity. The constellations, orbiting at between 500km and 1,000km altitude, are compatible with 3GPP standards and allow for NB-IoT devices to "connect seamlessly to both existing terrestrial networks and the new satellite network", the company explained in its statement. The service is being developed through the telecoms operator's Telefónica Tech and Telefónica Global Solutions (TGS) divisions and is set for pre-commercial pilots with customers later this year. "We are convinced that these types of solutions will help us to consolidate our position as a benchmark in IoT thanks to our Kite platform and other innovation projects based on virtualisation and the deployment of the network in the cloud", said Carlos Carazo, technology and technical operations director of IoT and big data at Telefónica Tech. Sateliot's co-founder and CEO Jaume Sanpera hailed the satellite provider's constellation for having "a unique cost-effective approach, pricing it at a fraction of current satellite connectivity". She said that the company sees "a huge market demand" for the service. "The revolution in [a] few months is becoming a reality and I am very happy, since a connected world is a better world", she concluded. The Barcelona-based Sateliot touts itself as "the first satellite telecom operator for global continuous IoT connectivity merging satellite and terrestrial networks under 5G protocol". It recently raised €10m in a Series A funding round backed by technology and consulting company Indra, tower operator Cellnex Telecom, and maritime data and satellite communication software GateHouse, according to business intelligence provider Crunchbase. Sateliot claims to have its own LEO satellite constellation but has not shared the number of satellites it currently has in operation. According to a report by SpaceNews magazine from July 2020, it planned to build and operate up to 100 small satellites. Admittedly, this number is dwarfed by other satellite operators with which Telefónica has been working, including OneWeb (for improving data connectivity across Europe and Latin America) and Telesat (for what is dubbed as Brazil's first 5G backhaul demonstration over LEO satellite). OneWeb's in-orbit constellation stood at 428 satellites (66% of total fleet planned) by April when it made an agreement with New Space India Limited to continue its satellite launch program, while Telesat's network comprises 188 LEO satellites, down from initial plans for 298 satellites in-orbit due to supply chain issues.

Sky Brazil Launches FTTH Via FiBrasil Network

Pay-TV/TD-LTE operator Sky Brasil Servicos (Sky Brazil) has launched a new fiber-to-the-home (FTTH) fixed broadband service via neutral network provider FiBrasil, the infrastructure company co-owned by Telefonica and Canadian investment firm Caisse de depot et placement du Quebec (CDPQ). According to TeleTime, the service – which is known as Sky Fibra – has gone live in nine municipalities in Rio Grande do Sul and should be available in 60 cities by end-2022. FiBrasil's FTTH networks currently pass 2.5 million homes in 76 municipalities across 16 states. The infrastructure is expected to be available to 5.5 million households in 250 municipalities by 2024. Sky Brazil launched TD-LTE connectivity back in December 2011. However, the company served just 151,298 fixed broadband subscriptions as of 30 June 2022, down from a peak of 365,695 in September 2018.

Virgin Orbit Successfully Launches Seven Satellites

Virgin Orbit (Nasdaq: VORB) has confirmed the success of its fourth consecutive satellite launch mission. This launch, named Straight Up, carried seven satellites to Low Earth Orbit for the United States Space Force (USSF), who procured this launch for the Rocket Systems Launch Program, with payloads provided by the Department of Defense Space Test Program (STP). In support of its mission partners, Virgin Orbit has now delivered a total of thirty-three satellites to orbit with 100% mission success. Virgin Orbit's fully mobile LauncherOne system conducted its first ever evening flight from a bare concrete pad and a runway at the Mojave Air and Space Port in California. The launch began at 10:50 p.m. local time, Friday, July 1, and concluded with the successful deployment of all seven payloads at approximately 12:55 a.m. Pacific on the morning of July 2, completing the company's first nighttime demonstration of the company's responsive space launch capabilities. The launch reached an orbit approximately 500km above the Earth's surface at 45 degrees inclination. This was Virgin Orbit's second time reaching that inclination – an orbit that no other system has ever reached from the West Coast. The seven satellites deployed by the result of the Straight Up launch are from multiple government agencies and will facilitate experiments intended to demonstrate innovative spacecraft technologies, new approaches for satellite applications, and Earth atmospheric science. The contract to launch this mission, also dubbed STP-S28, was awarded to Virgin Orbit National Systems in April 2020 by the United States Space Force as a three-launch mission. STP-S28A is the first of those launches. The Straight Up launch marked the company's fourth successful commercial flight. The U.S. Space Force Rocket Systems Launch Program is a first-time customer for Virgin Orbit. The U.S. Department of Defense Space Test Program is a three-time repeat customer of Virgin Orbit. "The LauncherOne rocket and Virgin Orbit team have made me immensely proud with today's Straight Up mission," said Virgin Orbit founder Richard Branson. "There is so much potential benefit for everyone from space if we just manage it well together. We are delighted for the opportunity to work with the US government to help make space a safe and fruitful environment for all." "We are honored to be supporting and delivering for the U.S. Space Force and the U.S. Department of Defense at such a critical juncture for national security space, our nation, and our world. An incredibly talented Virgin Orbit team and our LauncherOne system continue to demonstrate a track record of success for our spacecraft customers and that was confirmed again today," said Virgin Orbit CEO Dan Hart. The launch's name, Straight Up, is inspired by American singer Paula Abdul's breakthrough song from her debut studio album, Forever Your Girl. Released through Virgin Records on June 21,1988, it was the most successful debut album ever at the time of its release. The iconic dance-pop tune has remained Abdul's biggest international hit to date. Following the success of this launch, the Virgin Orbit team is preparing for its first international launch later this year in collaboration with the United Kingdom Space Agency, the Royal Air force, and Space Port Cornwall. This will be the first orbital launch ever from UK soil.

SpaceX Completes 24th Starlink Launch This Year

SpaceX has launched 54 Starlink satellites from Space Launch Complex 40 (SLC-40) at Cape Canaveral Space Force Station in Florida. This was the second flight for the Falcon 9 first stage booster supporting this mission, which previously launched CRS-24 and now one Starlink mission. The mission was SpaceX's 57th Starlink mission to date. It was SpaceX's fourth Starlink mission in August and 24th Starlink mission this year.

HUAWEI

Building a Fully Connected, Intelligent World

Smart Office Solution

Intelligent collaboration and convenient wireless office experience.

A NEW ERA OF DIGITAL WORKPLACE WITH IdeaHub

NEW NETWORK ARCHITECTURE

ABUNDANT AND INNOVATIVE TERMINAL DEVICES

Contact Us

enterpriseME@huawei.com

e.huawei.com/ae

IdeaHub | Network | Super Devices

Stocks Available. Get Fast Delivery!

Learn More

ARTICLE

Toward Excellence in the Digital Economy

Over the last two decades, digital technologies have transformed society at unprecedented scale, changing the ways we live, work, play, commute, and interact. Indeed, today, digital technology has the potential to make widespread social and economic advances. The COVID-19 pandemic has only reminded us of this fact, teaching the world that it must build digital resiliency to prepare itself to better handle unforeseen, disruptive events. Going further, to prosper in the new world we find ourselves in, it has become critical for nations to understand and cater to the digital-based economic construct that we refer to as the digital economy. Overall, the digital economy as a share of the total economy has, in general, been growing and those countries with larger digital economies, relative to the whole, have proven to be more resilient.

Defining the Digital Economy and Key Trends

According to the Organisation for Economic Co-operation and Development (OECD), the digital economy encompasses all economic activities reliant on, or significantly enhanced by, digital inputs, including digital technologies, digital infrastructure, digital services, and data. This can be taken as a broad definition. As such, the emergence and evolution of this digital economy is characterized by three key trends.

The Dominance of Digital Business Models: The digital economy is often called the platform economy due to the dominance of digital business models and the digital platforms that enable them. Key examples include the dominance of digital-native players — think Careem and Noon in transportation and retail — as well as the shift to apps and the closure of bank branches.

The Shift from Providing Services to Creating Experiences: In the digital economy, organizations differentiate themselves by creating digital experiences for customers. For example, the public sector is actively pursuing a whole-of-government approach, breaking institutional silos to provide a seamless digital experience to citizens through initiatives such as national government service portals, customer journeys, national digital identities, and more.

The Rise of Industry Ecosystems: In the digital economy, traditional and linear value chains, with limited partner engagement, have given way to scaled-up, integrated ecosystems that use software platforms to deliver value. For example, leading banks

Safder Nazir
Senior Vice President, Digital Industries
Huawei Middle East

HUAWEI

are engaging with Financial Technology (FinTech) pioneers to enhance services and innovate rapidly within the financial services industry.

The Importance of the Digital Economy in the Post-Pandemic World

Today, the impact of digital is visible everywhere, from accessing essential services and purchasing products through digital platforms, to the shift to virtual methods of learning and working. The digital economy is of particular importance to national leadership because of its impact in three key areas.

Economic Growth: As we've already touched on, digital economies have become significant contributors to Gross Domestic Product (GDP). China's digital economy, for example, was valued at US$5.4 trillion in 2020, contributing to 40% of the country's total GDP. Significantly, it helped the country overcome the challenges posed by the COVID-19 pandemic, contributing to an overall growth in GDP of 9.6%.

Employment Creation: The fundamental shift in the ways work is done in the digital economy creates new opportunities for job creation. The sharing economy model, for example, is already providing millions with viable livelihoods. China's own sharing economy grew 1.3% year-on-year in 2020 and presently has an estimated labor pool of 6.31 million people.

Reaching the Underserved: Rapid economic growth and urbanization have created economic divides within national boundaries. However, the rise of the digital economy has revitalized efforts to bridge the gap. For example, Huawei's TECH4ALL digital inclusion initiative aims to improve levels of education, environmental protection, and healthcare, as well as promote more balanced development, through clear actions: making digital technologies more affordable, improving wider society's digital skillset, and creating digital ecosystems that help developers build applications for different communities.

The Implications for the Middle East

The Middle East has made significant progress in the adoption of digital technologies over the last decade. Mobile broadband penetration across Gulf Cooperation Council (GCC) countries is now at 100% and more than 50% of consumers in the region already shop online. In the UAE, 80% of digital payments are contactless. With respect to the prevalence of digital skills among the population, GCC countries are ranked on par with major global players such as Hong Kong, Germany, South Korea, and Ireland.

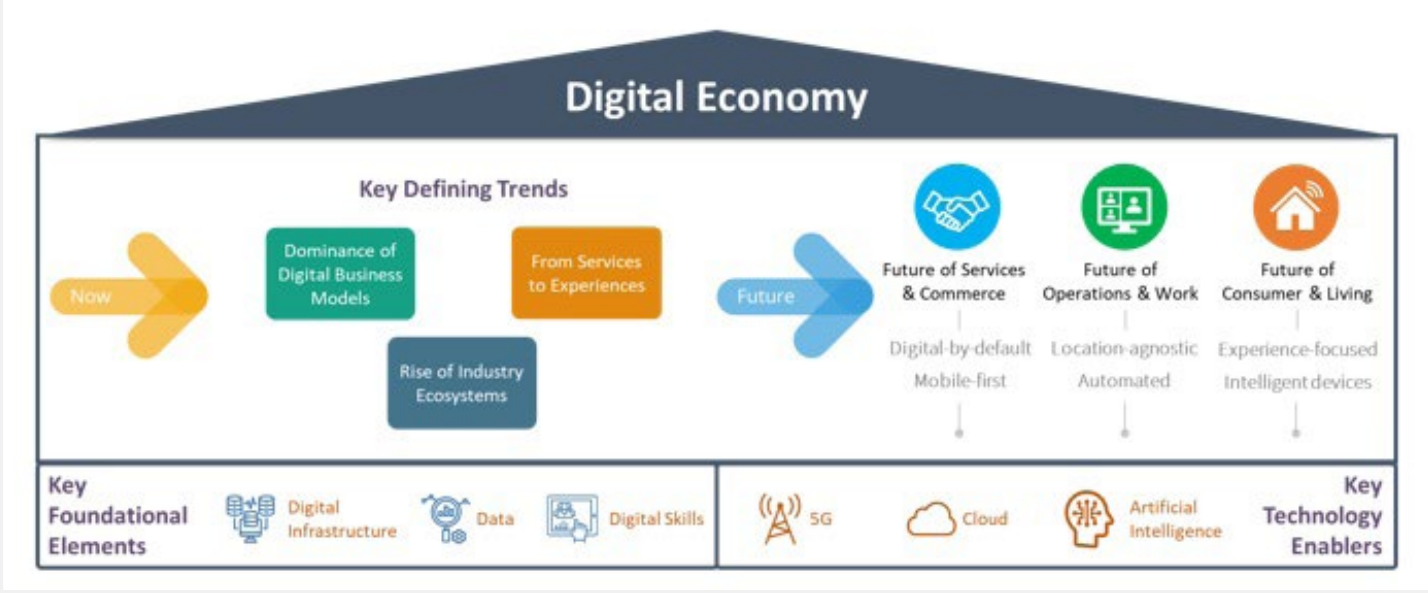
Changing consumer characteristics have also changed the nature of businesses in the region. Government-to-consumer interactions in the UAE, for example, are now predominantly digital and there are plans in place to close half of existing government service centers by the end of 2022. Indeed, the number of bank branches in the country has already fallen, by 34% between 2016 and 2020, coinciding with the launch of several digital banks, such as Liv., E20., NEO, NEOBiz, and CBD Now.

Today, every GCC country has a national vision focusing on the development of non-oil sectors for economic growth, local value and employment creation, and social development. National leaders have recognized the importance of the digital economy in achieving such visions. For example, Saudi Arabia has launched a Digital Economy Policy that aims to have the digital economy's GDP share on par with other leading global economies. A little further east, the UAE plans to double the size of its digital economy in just 10 years. Indeed, all of the countries of the region have undertaken initiatives to realize ambitious policy goals, focusing on data, Artificial Intelligence (AI), the cloud, and 5G-enabled services.

The Future of the Digital Economy

Digital technologies are proliferating and touching more and more aspects of the economy, particularly in terms of the ways products and services are consumed and delivered, the way transactions are conducted, and how operations are performed. It's predicted that, by 2022, more than half of the global economy will be based on or influenced by digital.

The Future of Services and Commerce: Organizations today are taking a digital-by-default approach to services and



The number of intelligent devices in homes has increased exponentially: by 2025, 90% of people will use personal assistants on their smart devices. Intelligent devices also play a role in the ways consumers interact with enterprises. It is estimated that, during the pandemic, customers spent 25% more time with those companies whose digital transformation plans enabled them to quickly and easily adapt to the realities of the crisis.

commerce. The Saudi Arabian government, for example, has introduced a digital-by-default and mobile-first approach to public services as part of its Smart Government Strategy 2020–2024. And e-commerce already accounts for 17% of all retail business in GCC, compared to the 3% share it enjoyed just five years ago.

The Future of Operations and Work: Digital is also changing how work is conducted, with increasingly automated operations and location-agnostic working cultures. It is predicted that, by 2025, the manufacturing sector will have 103 robots for every 10,000 employees. At the same time, working culture has experienced a dramatic shift since 2019. The hybrid work model of the future will not be constrained by the location of employees, offices, or other resources. By 2023, 70% of G2000 organizations are expected to have deployed remote or hybrid-first work models that redefine work processes.

The Future of Consumers and Living: Just as in the workplace, digital technologies have a significant impact on homes. The number of intelligent devices in homes has increased exponentially: by 2025, 90% of people will use personal assistants on their smart devices. Intelligent devices also play a role in the ways consumers interact with enterprises. It is estimated that, during the pandemic, customers spent 25% more time with those companies whose digital transformation plans enabled them to quickly and easily adapt to the realities of the crisis.

Thriving in the Digital Economy

To thrive in a digital-first world, organizations need to transition into digital enterprises. Fueled by data, a digital enterprise provides personalized experiences to customers through digital platforms, backed by constantly evolving and expanding digital infrastructure. However, 62% of enterprises in the Middle East are yet to reach sufficient digital transformation maturity to take advantage of the digital economy. To get there, they must re-invent business models, create new customer experiences, reimagine work models, and innovate with partners. Such efforts often face significant internal challenges, which organizations must overcome through well-executed change management.

Data Use and AI-Infused Analytics: The success of any organization in the new economic paradigm will depend on its capacity to collect, synthesize, and analyze data, as well as its ability to apply resulting insights at scale. However, most organizations struggle to achieve such success due to the large volume and variety of available data. AI-based automation can enhance each step in the business intelligence and analytics process, from finding and preparing to exploring, analyzing, and acting on data. Such solutions can also help businesses re-architect into data-native enterprises, creating superior customer experiences and making more informed decisions.

Skills Availability and Process Automation: In the digital economy, organizations grapple with skills issues as digital technologies in work environments become rapidly widespread. To tackle the skills issue and improve organizational agility, digital enterprises are increasingly investing in technologies such as Robotic Process Automation (RPA), AI, and Machine Learning (ML). Organizations that effectively use AI-augmented automation to boost efficiency and contain costs will gain a significant competitive advantage as the digital economy evolves.

Infrastructure Buildouts and the Cloud: Organizations seeking to transform into digital enterprises, master data, and use intelligent automation often face challenges with their existing, legacy Information Technology (IT) environments. Most have multiple, disconnected IT systems that hinder organization-wide change. A digital enterprise's capacity to generate revenue depends on the responsiveness, scalability, and resiliency of its infrastructure, applications, and data resources. Cloud-centric digital infrastructure and applications are essential for any organization's transition into a digital enterprise. Many features needed for the digital economy are now only available in cloud-based applications, requiring organizations to rapidly modernize legacy applications into cloud-native versions, to support new customer and operational use cases.

Embrace the Future

Today, a nation's future heavily depends on advancements in science, knowledge, innovation, and technology. Many countries in the Middle East are nurturing such advancements by developing foundational elements — such as infrastructure, data, and skills — through investments in critical technology enablers like 5G, the cloud, and AI. For digitally determined enterprises in the region that have embarked on their digital journeys, renewed focus on these foundational elements and technology enablers will reveal significant opportunities to thrive in the new world.

Transform your platform with **OmniClouds**

OMNI CLOUDS
A Platform To Transform

- Secure connectivity to cloud applications
- Pay-as-you-go model for futuristic technologies
- Optimized data centers with branch-to-branch connectivity
- Speed & easy accessibility on a global scale

Europe, Asia, Africa and Middle East

TRANSFORM YOUR PLATFORM

Get in touch today for a free assessment:

marketing@omniclouds.com

+971 52 578 6605

www.omniclouds.com

WHOLESALE NEWS

Tigo Colombia Inks Wholesale FTTH Deal with ETB

A matter of days after signing a wholesale contract with Ufinet, Tigo Colombia has entered into a new network access agreement with Empresa de Telecomunicaciones de Bogota (ETB). Under the terms of the deal, the telco will be able to offer Tigo-branded fixed broadband, fixed voice and pay-TV services to residential and small business customers using ETB's fiber-to-the-home (FTTH) network, which covers 1.5 million homes in Bogota. When combined with Tigo Colombia's own network infrastructure – as well as its other existing wholesale agreements – the partnership with ETB will allow Tigo to reach the vast majority of potential customers in Bogota, the largest city in Colombia. This represents

an increase of more than 20% in Tigo Colombia's commercial footprint for its suite of fixed line services.

EKIP Reduces Retail and Wholesale Prices

Montenegro's telecoms watchdog the Agency for Electronic Communications and Postal Services (EKIP) has ordered Crnogorski Telekom (CT) to reduce the price of certain retail and wholesale services from 1 August, and operators One, MTEL and Telemach Montenegro to lower their rates for national call termination. In terms of retail prices on its fixed network, CT is required to reduce the price of long-distance calls and those to other fixed networks in Montenegro by 10%, calls to mobile networks in Montenegro by 15%, and international calls to fixed networks in Zone II (Europe) as well as fixed and mobile networks in Zone IV (World) by 10%. As for its wholesale prices, the operator has been ordered to reduce bitstream access prices for Flat 2, Flat 4 and Flat 5 packages by 5%, Flat 8 and Flat 10 packages by 10%, and the price of leased lines by 20%. The regulator has also instructed CT, One, MTEL and Telemach to lower the price of national call termination services to fixed networks by 20% from 1 August, while CT, One and MTEL are required to cut their rates for call termination services on mobile networks by 16.13% from the same date.

KPN and Glaspoort Commit to Improved Wholesale Fiber Tariffs for Eight Years

The Netherlands Authority for Consumers & Markets (ACM) published a final decision under which Dutch nationwide fixed network operator KPN and its open fiber joint venture company Glaspoort must adhere to improved conditions and rates for wholesale access to their fiber networks for the next eight years. ACM had launched a consultation on 15 April regarding KPN and Glaspoort's proposals to lower rates and adjust conditions for access to their fiber networks. Various telecoms providers submitted critical comments, resulting in further adjustments to the proposals. ACM says the finalized decision, applicable until 2030, ensures that the tariffs in question will 'fall in all situations' and supports 'sufficient opportunities for telecom providers to compete sustainably and effectively'. ACM also noted that its delayed Wholesale Local Access market analysis is now due in the autumn, but in light of its latest decision the regulator is assuming a working hypothesis that there is no longer any reason for additional regulation of KPN and Glaspoort.

Egyptian Telcos Ink National Roaming Agreement

Telecom Egypt has announced the signing of a commercial agreement with Orange Egypt for national roaming services. In a press release Telecom Egypt said that the five-year agreement, which extends until the end of 2027, will 'ensure that [it] continues to provide high-quality voice and data mobile network coverage to its customers nationwide'. It was noted that the deal had been agreed after Orange won the tender for national roaming services that Telecom Egypt had issued to all local mobile network operators (MNOs), due to the impending expiration of its current roaming agreement with etisalat by e& (formerly Etisalat Misr), which ends in December 2022. According to Telecom Egypt, Orange submitted the best technical and financial offer in terms of value and return, while it was claimed the new agreement will provide a number of competitive, technical, and commercial advantages that will 'boost the development of Telecom Egypt's services and enhance its position in the Egyptian mobile market'. Commenting, Adel Hamed, Telecom Egypt's Managing Director and

CEO, said: 'This step confirms the depth of the strategic relationship between Telecom Egypt and Orange Egypt, and both companies' keenness to develop the telecom services in the Egyptian market. The new milestone will cement our position as a strong contender in the mobile market through the technical, commercial, and financial benefits—in particular, financial savings for our mobile call costs starting in 2023, which will improve the business line and consequently the overall margin—in line with our growing customer base. Concurrently, Telecom Egypt is committed to expanding its mobile network coverage by rolling out its mobile sites all over Egypt to provide superior telecommunication services to its customers.'

Telcos Directed to Ensure National Roaming by End of the Year

The IT ministry has directed telecom companies to implement national roaming by the end of this year so that citizens in areas with patchy network coverage can make calls and send messages using any cellular service. National roaming — to be imp¬lemented on motorways, highways and some tourist spots thro¬ugh the Universal Service Fund (USF) — will help users of one network (for example, Ufone) to avail the cellular services of another network (such as Telenor or Jazz). Simply put, you'll be able to use services of another network if you go out of coverage. "The telcos have been directed to settle the framework and charges agreement for national roaming with the PTA to implement it before the end of 2022," IT Minister Syed Aminul Haque said. He said national roaming would be essential on highways, motorways and at some tourist spots because no company had full coverage at such places. However, telecom companies have yet to agree on call rates they would charge consumers and share with each other. Meanwhile, national roaming has been made mandatory for all USF projects on motorways and some isolated spots with patchy network coverage. The USF works under the IT ministry to develop telecommunication services in unserved and underserved areas. It has no government funding and contributions come from 1.5 per cent of the adjusted revenues of telecom operators. A senior USF official said all technical arrangements had been made to implement national roaming, including security permissions, but the four telecom companies had yet to finalize the rate of national roaming calls. The official said it had been proposed that the rate of national roaming should be 1.25 or 1.5 times higher than normal rates. "As a result of national roaming, almost all the highways and motorways will get connected, as not every single company is required to establish its base along the complete route," the official said. Currently, the USF projects are under way at M3 and M5 motorways, Coastal Highway and National Highway 50 and 70. The USF has estimated that out of around 13,000 kilometers of highways and motorways in the country, some 8,000km were not connected with telecom and broadband services. According to its initial report, Balochistan paints a grim picture, as only 243km of its 4,129km highway network is served while 3,886km is unserved.

NCC Amends International Termination Rate Determination, Sets Fee at USD0.1

The Nigerian Communications Commission (NCC) has announced that it has increased the international termination rate (ITR) for voice services paid by overseas telecoms carriers for terminating international calls on local networks in Nigeria to USD0.10 per minute. The new rate will take effect on 1 September 2022 and has been set in US dollars (USD) to enable Nigerian operators to receive an increasing rate in Nigerian naira (NGN) terms to accommodate devaluation. It repeals the previous ITR decision which came into effect at the start of this year and set the rate at USD0.045. The previous rate was the minimum that could be charged, and operators were free to negotiate a rate above the floor via commercial negotiation with other operators and international carriers/partners. However, following complaints from industry players that this had led to discriminatory pricing, it has been determined that the new rate of USD0.10 will be the fixed price for international termination services and that operators are no longer free to negotiate a rate above or below that level. It applies for mobile operators and international carriers, while smaller Nigerian transit carriers and IDA operators are able to terminate inbound international calls in the network of domestic operators at a 21% discount. The NCC has added that the mobile termination rate (MTR) of NGN3.90 (USD0.009) for generic 2G/3G/4G operators and NGN4.70 for new entrant LTE operators determined in 2018 will continue to apply for local call termination until a new rate is determined by the regulator. Previously, the ITR for inbound traffic was increased from NGN3.90 to NGN24.40 per minute in October 2016 and the rate was maintained at this level from 1 June 2018.

ATS Signs Reseller Agreement with Speedcast to Expand Business and Widen Customer Base

US-based global satellite connectivity provider Speedcast has signed a reseller agreement with Algerie Telecom Satellite (ATS), Algeria's leading satellite services operator. The agreement will provision Speedcast's experience and expertise for ATS' resell, expanding and optimizing the Algerian company's business in VSAT solutions and services. Via the partnership ATS aims to widen its customer base and benefit from Speedcast's global presence to respond more efficiently to clients' needs. ATS has provided satellite services in Algeria for more than four decades and currently operates fixed and mobile satellite networks for cellular, banking, government and other industries across the country. Headquartered in Algiers, it operates a teleport at Lakhdiara and offices around Algeria. ATS is wholly government owned as a subsidiary of Groupe Telecom Algerie and a sister company of Algerie Telecom, Algerie Telecom Mobile (Mobilis) and Algerie Telecom Europe. Speedcast serves more than 3,200 customers in over 140 countries.

Vero Internet Inks Ten-Year Wholesale Deal with FiBrasil

Brazilian regional ISP Vero Internet has informed its shareholders that it has signed a ten-year wholesale contract to utilize fiber-to-the-home (FTTH) infrastructure belonging to neutral network provider FiBrasil. The deal was agreed on 17 August and can be extended for an additional five-year period. FiBrasil's FTTH networks currently pass 2.5 million homes in 76 municipalities across 16 states. The infrastructure is expected to be available to 5.5 million households in 250 municipalities by 2024. FiBrasil is co-owned by Telefonica and Canadian investment firm Caisse de depot et placement du Quebec (CDPQ).


GUERNSEY COMPETITION & REGULATORY AUTHORITY

BUSINESS CONNECTIVITY MARKET REVIEW

T1480GJ

Final decision:

Market definition & Competitive assessment

19 August 2022

GUERNSEY COMPETITION & REGULATORY AUTHORITY
Suite 4, 1st Floor,

GCRA Issues Final Decision Following Leased Line Market Review

A final decision regarding market definitions and the designation of significant market power (SMP) status as it relates to the provision of leased lines in Guernsey has been published by the Guernsey Competition and Regulatory Authority (GCRA). In line with a proposed decision issued by the regulator back in April 2022, the key elements of the GCRA's final decision include: that no operator has been designated as holding SMP in the retail market, while Sure Guernsey has been designated as having SMP in the wholesale market; and that while the retail market is not considered to be susceptible to ex ante regulation, the wholesale market is. Previously, the GCRA has said the purpose of its 'Business Connectivity Market Review' had been to examine the competitive conditions that prevail regarding the delivery of business connectivity services in on-island retail and wholesale markets and apply appropriate remedies where competition is found to be deficient.

CA, Operators Agree on Interim Termination Rates Following Challenge

The Communications Authority of Kenya (CA) has announced that it has agreed on an interim fixed and mobile termination rate (FTR and MTR) with telecoms operators following a consultative process. As such, a rate of KES0.58 (USD0.005) per minute will apply from 1 August 2022 for a period of twelve months, after which the CA will issue new rates based on the outcome of an ongoing network cost study. The CA issued a determination on interconnection rates in December 2021 which would reduce the FTR and MTR from KES0.99 to KES0.12 per minute effective 1 January 2022. Shortly after this, however, Safaricom petitioned the Communications and Multimedia Appeals Tribunal to block the introduction of new rates, saying the move would negatively impact on its revenue and profitability, and arguing that the CA should have adopted a cost modelling approach to determine the termination rates, rather than an international benchmarking methodology. Following Safaricom's application, the tribunal suspended the CA's decision and the regulator engaged with telecoms operators to reach a compromise on the rates. The CA says that with the adoption of the interim termination rate, 'it is expected that operators will remain incentivized to invest in quality and innovation as consumers enjoy affordable communication products and services.'

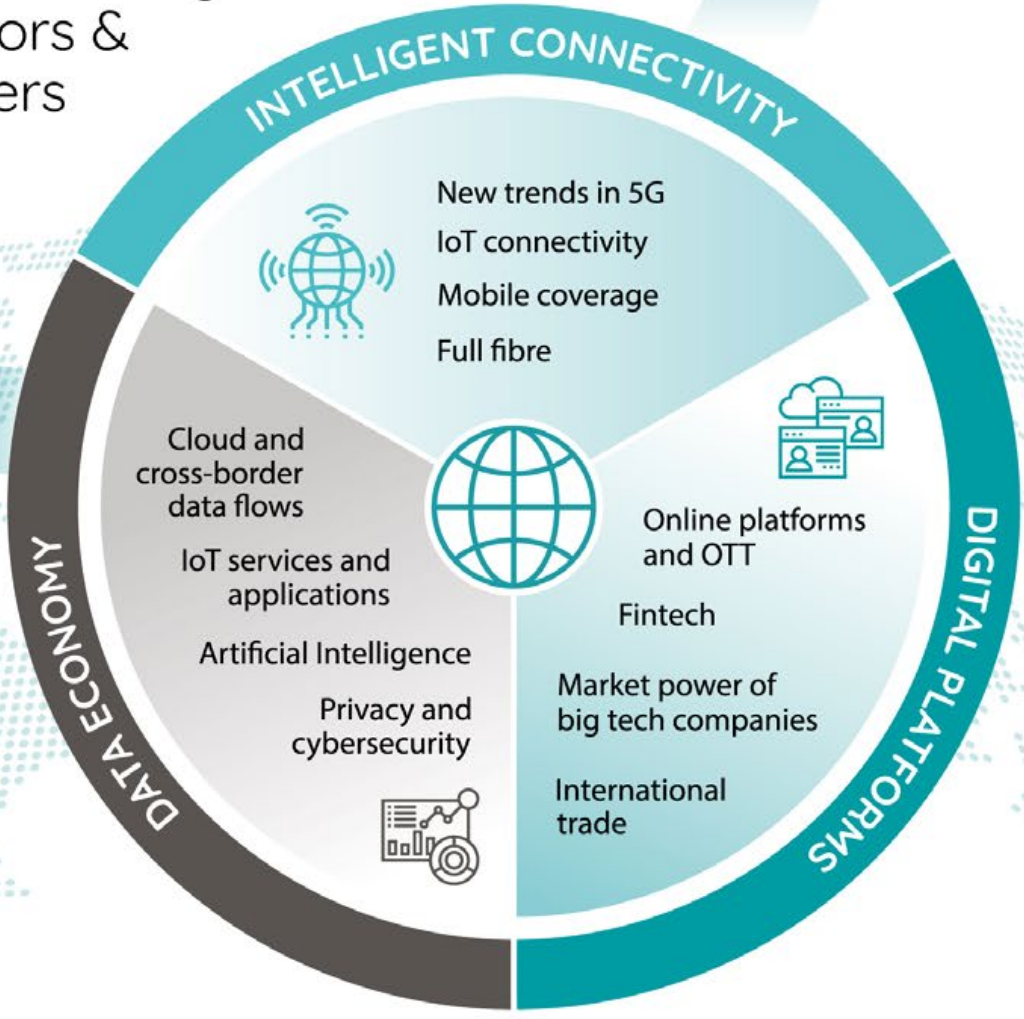
Gabon and Togo Sign MoU on Free Roaming

Gabon and Togo signed a Memorandum of Understanding (MoU) on 4 August to abolish roaming charges between the two countries. The telecoms regulators of the two countries noted the agreement will result in a substantial drop in the price of mobile services (voice, data and SMS) while roaming, with outgoing calls billed at the local rate and no charge for incoming calls. In order to ensure swift implementation of the deal, a delegation from Togolese mobile operators Togocom and Moov Africa Togo arrived in Libreville on 6 August to discuss the technical aspects with their counterparts at Gabon Telecom (Moov Africa) and Airtel Gabon.

Global Trends

a new intelligence service by Cullen International

Get expert insight on the global tech trends at the top of the agenda for regulators & policymakers



CULLEN INTERNATIONAL

See more examples and find out how our intelligence could help you with a free personal demo:
https://pages.cullen-international.com/GT

www.cullen-international.com

regulation made simple

ARTICLE

Provision of IoT Service Requirements in MENA Region

Muatasem Khairaddeen
Senior Analyst

Marios Yiatzidis
IoT Regulation Analyst

Globally, a growing number of telecommunications and ICT service providers are trying to ensure the interaction of connectivity services with a range of new services such as internet of things (IoT) and machine to machine (M2M) communications.

IoT refers to communication between devices that may have limited or no human interaction, connected to the Internet through multiple networks.

Middle Eastern and North African countries (MENA) have shown an active effort to facilitate the rapid deployment of IoT/M2M platforms by formulating the regulatory framework that defines the ability of providing such services.

Cullen International has researched the IoT regulatory frameworks in 13 MENA countries including Algeria, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, Turkey, and United Arab Emirates (UAE).

Among these countries only five have established a specific regulatory framework for IoT. The IoT regulations in the five countries set general requirements such as licensing requirements for IoT service provision and for IoT connectivity.

In other countries, there are often no specific rules applying to IoT services, which are subject only to the normal telecoms and spectrum licensing framework.

Only licensed telecoms service providers can provide connectivity to IoT devices and systems. However, NRAs in some countries adopted specific requirements for the provision of IoT connectivity.

In Egypt, the NRA defined three types of networks that can provide IoT connectivity:

- a mobile network;
- a non-cellular LPWAN network; and
- a satellite network

Non-cellular LPWAN networks and satellite networks are subject to licence requirements while a licensed mobile network operator needs to apply for an annex to its licence.

In Saudi Arabia, IoT connectivity can be provided by a general class licence holder

Egypt, Jordan, Oman, Saudi Arabia, and UAE have adopted a specific IoT regulation (Cullen International)

with specific authorization to provide internet of things over virtual network operator and/or using license-exempt frequencies. A facility-based operator can provide IoT connectivity without the need for additional licence and to use licence-exempted frequency bands.

The NRA of Saudi Arabia suggested a new licensing regime for IoT networks. The IoT connectivity provider would have separate obligations from IoT solution providers. For the latter, no licensing nor registration would be required.

In UAE, the NRA decides on a case-by-case basis if the provision of IoT-specific connectivity requires a licence or not. Licensed telecoms operators can use their networks to provide IoT connectivity without the need for an additional licence.

Country	IoT service provision requirements by NRAs
	**Algeria** · The provision of geolocation services by radio or satellite requires an authorisation. · Providers of other IoT services over existing telecoms networks must notify the NRA.
	**Egypt** · Providers of paid IoT services over IoT networks established by others shall obtain a licence.
	**Jordan** · Operation of an IoT system requires an approval from the NRA. · IoT system can be used within a private telecoms network. An IoT System can be connected to a telecoms network to only serve the private use of the system but not to provide a public service.
	**Morocco** · Providers of IoT services over licensed telecoms networks must notify the NRA about the IoT service they provide. · The NRA is considering an authorisation approach for IoT services.
	**Oman** · Providing services through an IoT platform requires an authorisation from TRA. However, geolocation and tracking services are exempted from authorisation requirement but must be notified to the NRA and comply with geolocation and tracking regulation.
	**Saudi Arabia** · Provision of IoT service requires a general class licence. · However, a holder of a facility-based unified licence, such as mobile network operators, do not need to acquire an additional licence to provide IoT services.
	**UAE** · Provision of IoT service requires a registration certificate. · This is applicable to all IoT services provided inside UAE, whether the provider is located within UAE or abroad, and also to telecoms licensees. · The holder of a class authorisation (equipment approval) is not eligible to provide any regulated service in UAE. Such authorisation only allows the operation of wireless devices within a registered IoT service.

Provision of IoT service itself (e.g. a smart meter or a connected car provider) is subject to requirements by national regulatory authorities (NRA) in seven MENA countries (Cullen International)

There are two options for global operators seeking to arrange IoT connectivity for their clients:

- either permanent roaming, so a foreign SIM and foreign number will be use permanently in a given country
- local profile, means that the SIM card comprises of the operator data related to a subscription, including IMSI with the operator's credentials and any operator or third-party SIM based applications that would have otherwise been stored on a traditional SIM card.

This paper only discusses regulation of permanent roaming in MENA region. In Egypt and Jordan, use of permanent roaming requires signing an agreement between the national mobile operator and the foreign operator who owns the SIM card installed in the IoT device. In Egypt such agreements must be approved by the NRA.

Although it is possible to use roaming for the provision of an IoT service using roaming, the provider of the IoT service is still subject to the IoT service provision requirements.

Cullen International closely monitors the developments in this extremely fast-growing sector worldwide and carries out benchmarking analyses of the national initiatives on IoT/M2M regulations, policies and strategies. Particular emphasis has been given in this initial phase on the connectivity between these devices across national borders. The deployment of IoTs depends on the cross-border connectivity. The expansion of IoTs has a transnational character evolving their ability to communicate with each other regardless of location, country of installation and distance between them.

The provision of IoT services using permanent roaming is not prohibited in all countries studied except Oman, Turkey, and Saudi Arabia (Cullen International)

The global IoT connectivity solution is a key element of its success. It can be achieved either by permanent roaming or local SIM profiles and by using foreign numbers in the countries of the benchmark or national numbers outside the countries.

TECHNOLOGY NEWS

Bell Launches '5G+' 3500MHz Service in Ontario; Prepares to Deploy 5G SA Core Network

Bell Canada announced the availability of '5G+' mobile services based on 3500MHz spectrum in selected parts of southern Ontario, offering compatible smartphone users in Toronto, Guelph, Kitchener-Waterloo, London, Barrie and parts of Mississauga faster and more responsive 5G mobile network performance – claiming that in Toronto 'speeds with 5G+ are now over 50% faster than before.' Bell aims to continue expanding the 5G+ footprint across the country to reach approximately 40% of the population by the end of 2022, with peak theoretical download speeds of 3Gbps in select markets. Bell also announced that it will soon roll out a nationwide 5G standalone (SA) core network, starting in Toronto, supporting even faster speeds and ultra-low latency. Over time, Bell says the 5G SA core will provide additional benefits such as network slicing and will enable a full range of 5G features and functionality for both enterprise and consumer use cases and support the massive growth of IoT. Bell noted that 5G SA-based services will shortly be available for enterprise customers in Toronto 'with a compatible device and the appropriate provisions' and subsequently for enterprises nationwide. Bell and its partners are currently trialing 5G SA network slicing, allocating speeds and dedicating capacity for use cases such as first-responder live video applications.

US 5G Coalition Hits Out at SpaceX 12GHz Claims

The 5G for 12GHz Coalition returned fire on a SpaceX contention Dish Network's use of the frequency would hinder its Starlink satellite broadband service, accusing the business of failing to provide technical proof of its claims. In a statement, the coalition claimed its research had found little risk of harmful interference to SpaceX's fleet of low Earth orbit (LEO) satellites in the vast majority of cases, adding the company had drawn spurious conclusions based on limited testing. Dish Network is a member of the 5G for 12GHz Coalition, alongside companies including Dell: a representative for the cable operator's mobile subsidiary told Mobile World Live the group's view reflected its own. The coalition stated testing conducted in the 18 months since the Federal Communications Commission (FCC) began investigating the use of the 12GHz band had found coexistence was feasible, with 99.85 per cent of non-geostationary (NGSO) satellite terminals "experiencing no risk of harmful interference alongside 5G". It noted SpaceX had failed to submit any expert technical details during the FCC proceeding, arguing the satellite operator had instead "submitted a self-produced political document in the guise of" proper analysis.

Anti-5G

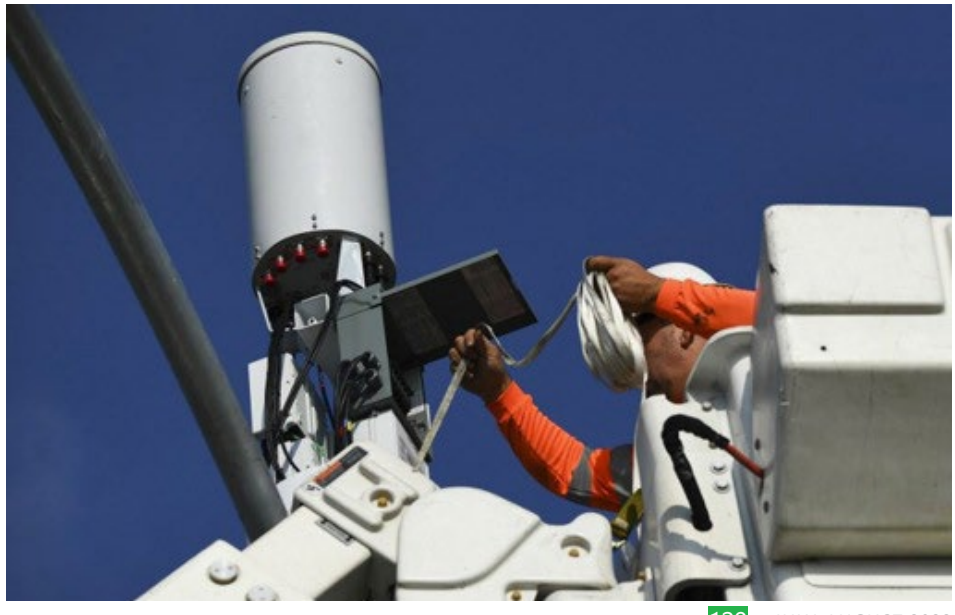
SpaceX last month submitted research to the FCC claiming Dish Wireless' use of the 12GHz spectrum would cause "harmful interference" to Starlink services along with potential outages. But the coalition asserted SpaceX attempted to imply "nationwide conclusions based on results it generated from a single cherry-picked partial economic area", Las Vegas, a geography it stated was nearly ten-times as unfavorable for 5G and satellite coexistence as the national average. It stated SpaceX "grossly distorts the 5G network configuration to create interference with NGSO terminals" and accused the company of conducing a campaign of misinformation which "promulgates an anti-5G narrative". SpaceX last month called for Starlink users to file objections with the FCC over Dish Network's plans to use the 12GHz band for 5G services, which had resulted in some 95,704 responses as of 7 July.

CRTC Adopts Modern Approach for the CBC/Radio-Canada's Traditional and Digital Services

Canadian Radio-television and Telecommunications Commission (CRTC) has adopted a new approach to ensure that the CBC/ Radio-Canada's programming meets the needs and interests of all Canadians, in both official languages, across all its services. The CRTC is also introducing new spending requirements that will promote the creation of more diverse content. The emergence of online platforms has changed the way Canadians consume audio and audiovisual content, including the CBC/Radio-Canada's programming. The CRTC is adapting the way in which it regulates the national public broadcaster to provide it with more flexibility to fulfill its mandate across traditional and online platforms, while recognizing the need to make the new framework adaptable for the years to come. To balance this flexibility, accountability and transparency are being increased through new and enhanced reporting and measurement requirements for programming on all the CBC/Radio-Canada's platforms. This new reporting framework will be better aligned with the objectives of the new approach, including those related to diversity. New spending and reporting requirements are also being imposed to ensure that the national public broadcaster supports and broadcasts programming that is relevant to and reflective of all Canadians of diverse backgrounds and Indigenous Peoples living in Canada. To enhance diversity in its programming, the CBC/Radio-Canada will have to invest in audiovisual Canadian programming, audiovisual Canadian independent programming from Indigenous producers, racialized producers, producers with disabilities and producers who identify as LGBTQ2. The CRTC is also maintaining certain spending requirements for programming by and for official-language minority communities. Regarding audio programming, the CRTC is maintaining musical content requirements and is also introducing a new content requirement for Indigenous music on the CBC/Radio-Canada's English and French-language radio services. The CRTC is requiring the CBC/Radio-Canada to conduct regular surveys of all Canadians on how it is meeting their needs. The CRTC will also require that the CBC/Radio-Canada hold formal consultations every two years with Indigenous Peoples, official-language minority communities, racialized persons, persons with disabilities and persons who identify as LGBTQ2. These initiatives will ensure that its programming is reflective of these communities and meets the needs and interests of these communities. "The CRTC is modernizing its approach to ensure that the CBC/Radio-Canada's programming can adapt to and reflect the evolving preferences of Canadians, including equity-seeking and official-language minority communities and Indigenous Peoples. We are giving the CBC/Radio-Canada more flexibility, while ensuring it is accountable and representative of our various geographic and cultural realities in both official languages." says Ian Scott, chairperson and chief executive officer, CRTC.

Brussels Region Approves Proposal to Increase Base Station Limits for 5G

The Brussels regional government has approved a draft ordinance to raise maximum emission levels for radio antennas, clearing the way for deployment of 5G services in the Belgian capital. The second reading of the proposal to raise the limit on electromagnetic radiation from current 6 V/m to 14.57 V/m outdoors and 9.9 V/m indoors was passed last Thursday, Environment Minister Alain Maron's office has confirmed. A public inquiry will now be organized in August and September and the final reading of the draft ordinance is expected before the end of the year. 'The Brussels region is therefore moving forward by preparing for the arrival of a 5G network which is harmonious, respectful of the health of the public, and for the benefit of all,' the government told Belga news agency.



UK Government Gives Boost to 5G Development

In the latest part of its policy to deliver what it says will be more secure and resilient telecoms networks, the UK government has created a new body for telecoms innovation and has inked what it says is a milestone R&D partnership with the Republic of Korea. As part of the Future Open Networks Research Challenge, universities and telecoms firms have been invited to apply for up to £25 million to research and develop the next generation of network equipment for 5G and even 6G infrastructures as part of new government plans to unleash innovation in the sector. This is designed to enable academics and the industry to conduct early-stage research into open and interoperable telecoms solutions, such as Open Radio Access Network (Open RAN). The government is accelerating the development of this technology - which allows operators to mix and match equipment rather than relying on a single supplier when building or maintaining networks - as part of its £250 million Open Networks R&D Fund. It aims to build more secure and resilient broadband and mobile infrastructure by boosting competition and innovation within the telecoms supply chain. The scheme will fund several consortia of universities and suppliers to conduct early-stage research and development of telecom solutions sustaining openness and interoperability for 5G and future networks such as 6G. The relationship with the Republic of Korea will see the UK invest £1.6 million in a joint-funded £3.6 million competition to collaborate on what the countries say is a world-first R&D project to accelerate the development of Open RAN technology. Each country will fund a group of several companies to work together to accelerate the development of technical solutions to improve power efficiency in Open RAN networks. Power consumption is a major operating cost, so the work will support wider adoption of Open RAN technologies, reduce operating costs and support net zero ambitions. The new scheme comes as £10 million has been awarded to launch the UK Telecoms Innovation Network (UKTIN), a new body dedicated to boosting creativity in the country's telecoms supply chain. The UKTIN will act as an information and ideas hub for industry and academics looking to access funding or R&D testing facilities and opportunities to collaborate on developing new mobile and broadband technology. The Digital Catapult, CW (Cambridge Wireless), University of Bristol and West Midlands 5G have been revealed as the winners of the competition to set up and oversee the network.

Singtel 5G SA Network Blankets 95% of Outdoor Areas, Three Years Ahead of Schedule

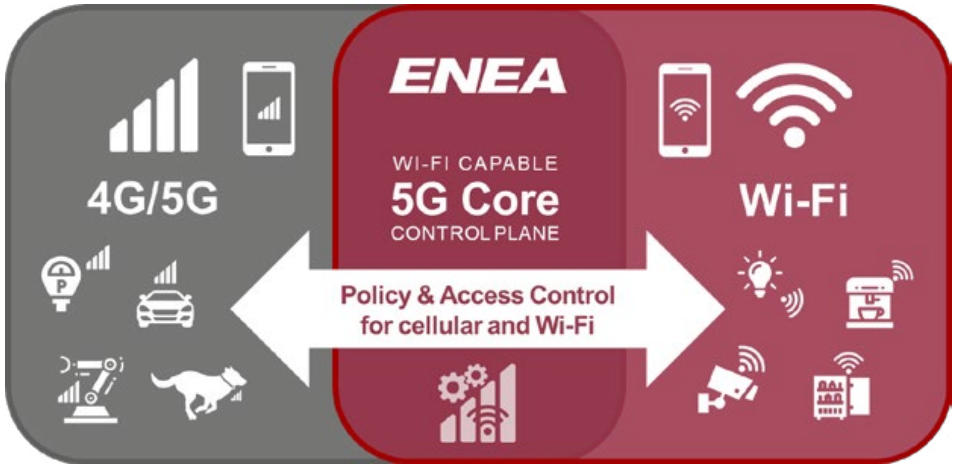
Singtel has revealed that its 5G standalone (SA) mobile network now covers 95% of outdoor areas in the country, some three years ahead of the company's end-2025 target. The 5G SA network presently covers more than 1,300 outdoor areas and also provides signal coverage to more than 400 buildings and underground locations. Singtel was awarded 3.5GHz and mmWave spectrum as part of the license it received from the Infocomm Media Development Authority (IMDA) in June 2020, and secured an additional block of 2.1GHz spectrum in November 2021 which helped it reach this latest milestone.

Global AI Market Will Grow to Over 1.5 Trillion U.S. Dollars by 2030

Ever increasing technological change is rapidly increasing its beneficial impact on every aspect of people's lives, leisure and work activity. As it is as every business in the world turns to digital solutions to keep pace with an ever more demanding customer. A key engine for these changes is the application and development of Artificial Intelligence (AI), linking up with the whole digital ecosystem of Internet of Things (IoT), 5G, cloud computing, cyber security, entertainment and local, national and international complete connectivity. AI is proving increasing disruptive impacting positively the speed, efficiency and cost of our daily lives. It is impacting healthcare, financial products, leisure, manufacturing, retail amongst many other sectors as well as creating new sectors for the future. It is also saving lives as well as time, for example in healthcare, where it can identify, analyze and personalize treatments, quicker, safer and more effectively than ever before. AI is also helping protect our planet, embedded within smart infrastructures, smart cities and resource management to ensure we protect the planet and provide food more productively and efficiently. The market research firm IDC projected that the global AI market will reach a size of over half a trillion U.S. dollars by 2024. Precedence research suggest the market will grow to over 1.5 trillion U.S. dollars by 2030, as stated by Statista. This growth is fueled by an ever-increasing number of AI startups. AI startup acquisitions have accelerated since 2010, growing almost fourfold between 2015 and 2018. Global funding for AI startups has increased from over a billion U.S. dollars in 2013 to 8.5 billion U.S. dollars in the first quarter of 2020 alone. The potential and key importance of AI has been recognized with Saudi Arabia for some time. An indication is the formation of the Saudi Company for Artificial Intelligence (SCAI), a company wholly owned by Public Investment Fund (PIF), to grow and develop artificial intelligence (AI) and emerge technologies into industries in KSA, to substitute innovation in strategic sectors and accelerate key national technological priorities. Within this ambitious framework, stc, the leading

digital enabler in the region, has launched a long-term strategic partnership with the Saudi Company for Artificial Intelligence (SCAI) and DataRobot. This partnership will drive the growth and development of the Kingdom's AI capabilities and empower the next generation of Saudi changemakers and tech talent. All partners will leverage their resources, networks and ecosystems with a range of ongoing collaborative efforts, working together closely and sharing best practices to advance the Kingdom's tech landscape to transform it into a hub of innovation. As part of the agreement, DataRobot — the AI Cloud leader — will establish its regional headquarters in KSA, where an AI development hub and Research and Development center will also be set up. The launch of the partnership marks the latest step taken by stc and SCAI to bolster the Kingdom's AI infrastructure, with DataRobot underlining its commitment to democratizing artificial intelligence by providing people and communities easy access to quality AI solutions. Crucially, this will also contribute to the enhancement of regional and global AI services in green tech, oil and gas and healthcare, setting the Kingdom apart — on the global stage — as a pioneer of tech innovation. The launch of stc's strategic partnership with SCAI and DataRobot is very much in line with its Vision 2030 goals and "Dare" strategy, which aims to improve and develop the local economy, while safeguarding the Kingdom's sustainable growth, and supporting its human capital development. SCAI and DataRobots join stc's long list of partners, including Ericsson, Huawei and Nokia — likeminded entities that have supported the digital service provider to establish three innovation centers for research and development in the Kingdom. This adds even more weight to stc as the only global player owning and operating the complete digital eco-system of IoT, cloud, connectivity, cybersecurity, entertainment, banking, every aspect of connectivity and 5G etc. It builds on the $1bn launch of its major digital hub "MENA Hub" for the Middle East and North Africa, investment with Alibaba Group the Alibaba Cloud in Riyadh, Kingdom of Saudi Arabia, with an initial capital investment of $238.3 million (SAR 894 million), a 5):50 joint venture with PIF forming a specialized company for IoT, are just three recent illustrations of stc's determination to invest with expanding scope, increasing scale and accelerating pace.

Enea Launches Dual-Mode Engine for Faster and Easier 5G Service Deployment



Enea have launched the 5G Service Engine (5G-SE), a 4G and 5G dual-mode convergent platform to enable CSPs to launch new 5G enhanced services and seamlessly transition existing 4G services. CSPs can now deploy Gi-LAN and N6 services simultaneously with both the 4G Packet Gateway and the 5G function (UPF) in a multi-vendor cloud-native architecture. This flexibility means CSPs no longer need to maintain services within each packet core, reducing costs and complexity dramatically to manage dual operations and the 4G/5G transition. Despite strong growth in 5G uptake, 4G subscriptions are still on the rise. In Q1 2022, 4G grew by 70 million to reach 4.9 billion, and the point at which 5G subscriptions could surpass 4G is years away, in 2027. As 4G's dominance continues, CSPs need agile architecture that can manage dual-mode services during the transition. The Enea 5G-Service Engine meets high-performance requirements while providing a reduced physical footprint and ease of deployment through an automated, centralized management system. This reduces the total cost of ownership and time to market for new services. "There is no real 'standalone' when it comes to core networks," said Osvaldo Aldao, Vice President of Product Management. "In order to get efficiencies, CSPs will have to converge in-line services for 4G EPC and 5G-Core. We have developed the Enea 5G Service Engine with that conviction in mind. It helps forward-looking operators to easily transition existing 4G network services and efficiencies and deliver a better 4G and 5G end-user experience." The 5G-Service Engine also features a stateless architecture that uses a common data store for all 5G and 4G subscriber session information. This facilitates horizontal scalability and provides a seamless transition between both the radio and packet core. "As we move into the true 5G era with standalone networks, operators want to offer new services that 5G promises along with integrating existing services from the 4G world," stated Dave Bolan, Research Director at Dell'Oro Group. "Enea's 5G Service Engine certainly meets the need for simplifying operations and offering more value-added services for operators' customers, with the latest container-based cloud-native architecture enabling microservices to be offered by the operators.'

Haiti Backs Satellite Broadband and IoT Trials

Haiti's National Council of Telecommunications (Conseil National des Telecommunications, Conatel) has approved a pilot satellite internet scheme to be run by SpaceX. The project will include satellite broadband and IoT services from SpaceX units Starlink and Swarm. Tests will be conducted at 20 Civil Protection Directorate (DPC) sites over a four-month period, while a longer two-year trial will be run at five other locations. Last month Haiti's neighbor Dominican Republic became the first Caribbean country to have commercial satellite broadband services from Starlink.

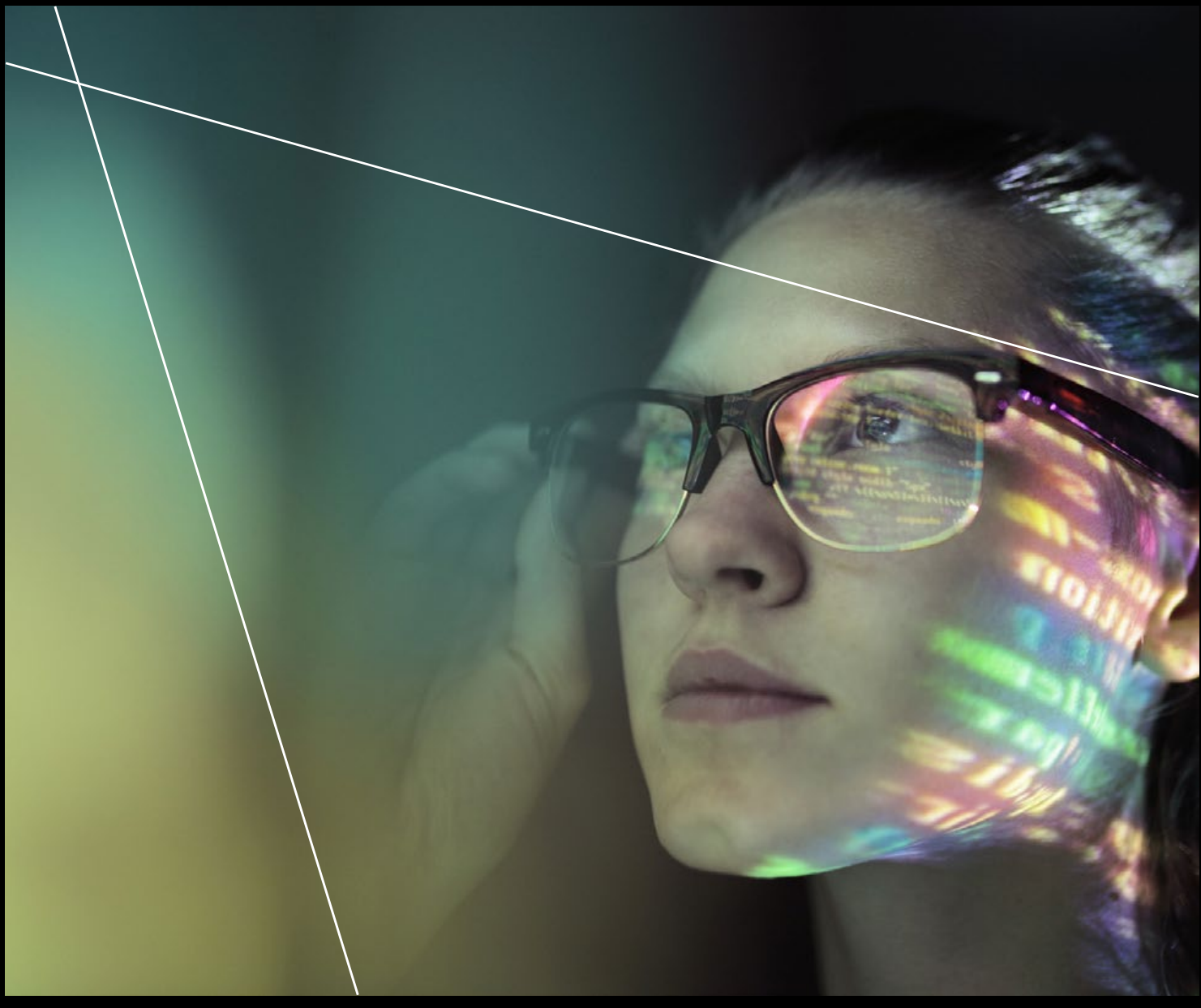
SES

REIMAGINE A SUCCESS STORY

To learn more visit
o3bmpower.ses.com

—

Unmatched scale.
Unprecedented flexibility.
Superior performance



O3b mPOWER

ARTICLE

The Innovation Power of O3b mPOWER

Stewart Sanders
Executive Vice President of Technology
SES

The first system of its kind, O3b mPOWER, built on the commercial success of SES's current O3b MEO (Middle Earth Orbit) system, is able to constantly evolve, adapt and change to address new customer needs, during its lifetime.

Since its unveiling in 2017, O3b mPOWER has been a strategic initiative and major undertaking for SES, from its own engineering and product management to collaboration with a wide range of hardware, software and services partners.

Leading the charge from a technology perspective is Stewart Sanders, SES's Executive Vice President of Technology and O3b mPOWER programme manager. The launch of the initial O3b mPOWER constellation only months away, we spoke with Stewart to better understand the power and potential of the O3b mPOWER ecosystem.

> *O3b mPOWER's real superpower is its software that is spanning the satellites, ground stations, modems, antennas and even through to the cloud. Our vision for the future of satellite-based connectivity is that customers are able to simply order what they need depending on locations, capacity and other service parameters – and the software-driven orchestration implements the service automatically in real-time.*

From your perspective of being at the forefront of O3b mPOWER development, what makes it so unique and exciting?
What really excites me in O3b mPOWER, is that it was conceived as a holistic system that encompasses space, ground and software with unprecedented flexibility to deliver services nearly anywhere and on-demand. With the constellation's capacity and flexibility being the first in the industry, O3b mPOWER opens up entirely new capabilities and applications for customers in terms of satellite-based connectivity.

O3b mPOWER's real superpower is its software that is spanning the satellites, ground stations, modems, antennas and even through to the cloud. Our vision for the future of satellite-based connectivity is that customers are able to simply order what they need depending on locations, capacity and other service parameters – and the software-driven orchestration implements the service automatically in real-time.
There are many different elements coming together in the O3b mPOWER ecosystem.

> *As more new customers turn towards satellite connectivity, the overall market trend is that they are also looking for resiliency and ability to benefit from the multi-orbit technology. Today, we are the only provider of multi-orbit solutions, and our customers value the performance of MEO, including its ideal balance between reach as well as low latency and high throughput.*

To start with space, what can you tell us about the satellites?
The ecosystem vision was the driving force behind the design of O3b mPOWER, and we knew from day one that it was something that would require the collaboration, engineering expertise and insights of a wide range of partners to make it a reality.
So, space is indeed one of the fundamental parts of this ecosystem. To build the satellites, we worked closely with Boeing to create the first fully digitised and beam-forming aircraft, including an initial constellation of 11 satellites in the medium-earth orbit (MEO), that will cover 96 percent of the population and areas where connectivity is needed most. It will have significantly more capacity than the previous generation of MEO.

What about the ground segment?
This is another fundamental part of the equation, and specifically the new ground stations we are building, modem technologies, new edge compute capabilities and the ability to land traffic at a managed or private gateway or even directly into Azure or another cloud data center.

For ground, the key area of focus has been on working on next-gen customer terminals and antennas – from flat panels to multi-beam antennas – to suit a wide range of market segments and customer business requirements. We've been actively testing antennas for the various segments from multiple providers, such as Isotropic Systems, Intellian, Comtech, Gilat, ST Engineering iDirect, Orbit, among others.

You mentioned that software is the real superpower of O3b mPOWER, what does it mean in practice?
Software is implemented across all the key elements of O3b mPOWER. In fact, we are holistically integrating a range of cutting-edge software that forms a system – to give us the flexible, real-time control, supporting our fully automated vision. We worked with partners like Microsoft for instance, but also with many others, leaders in their specific domain.

A great example of this is the Adaptive Resource Control (ARC) that we are developing with Kythera Space Solutions. ARC enables control and optimisation of power, throughput, beams and frequency allocation across O3b mPOWER's space and ground assets – as well as our next-generation GEO satellites. This allows unprecedented levels of automation, revolutionary for the industry.

You've already announced a number of O3b mPOWER customers – what are some of the early applications the market expects to see?
As more new customers turn towards satellite connectivity, the overall market trend is that they are also looking for resiliency and ability to benefit from the multi-orbit technology. Today, we are the only provider of multi-orbit solutions, and our customers value the performance of MEO, including its ideal balance between reach as well as low latency and high throughput.

In terms of uses, we see a lot of interest from government customers, including those looking to set up sovereign networks, or use it to bolster ISR capabilities, bringing them to a new level. For fixed data customers, there is strong demand for using it for cellular backhaul – like Orange plans to – as well as expanding cloud domains to new locations. And, of course, maritime where our cruise clients like Carnival will use added capacity to create new customer experiences on ships, bring better connectivity on more routes. We're also seeing connectivity increasingly added to different classes of maritime vessels.

What can we expect next in the O3b mPOWER journey?
It's an exciting time for us as our satellites are undergoing a series of testing, just months away from launch time. From an ecosystem perspective, we continue expanding our partnerships around new antennas and adding more ground stations, these developments create an impressive momentum. Most importantly, we'll continue to invest and collaborate on new software capabilities as O3b mPOWER is the first system that will not have static features locked in at launch - but systems that can evolve, adapt and change through software to address new customer needs.

GO CLOUD
overcome challenges

خدمات جو السحابية (IaaS)

GO Cloud Services

- قابلية التوسع
  Immediate scalability
- أداء عالي
  High performance
- سرعة التأسيس
  Fast deployment

جو GO
شركة اتحاد عذيب للاتصالات
Etihad Atheeb Telecom Company

cloud.go.com.sa

REGULATORY NEWS

UAE to Host Next Year's World Radiocommunication Conference (WRC-23) in Dubai

The International Telecommunication Union (ITU) is pleased to announce that the next World Radiocommunication Conference (WRC-23), will take place at the Dubai World Trade Centre in Dubai, United Arab Emirates (UAE) between 20 November and 15 December 2023. Held every four years for a period of four weeks, the World Radiocommunication Conference (WRC) is mandated to update the Radio Regulations, the sole international treaty governing the use of the radio frequency spectrum and the geostationary-satellite and non-geostationary satellite orbits. "I am very pleased that the WRC-23 is set to happen in Dubai in the United Arab Emirates," said ITU Secretary-General Houlin Zhao. "The world has come through the COVID-19 pandemic relying on digital technologies and services like never before. WRC 23 provides our quadrennial opportunity to update the Radio Regulations, ensure the sustainable evolution of information and communication technologies (ICTs) for all, and establish a coordinated roadmap for expanding radiocommunication services."WRC-23 will bring national government authorities and telecommunication regulatory agencies together with representatives of key radiocommunications users and providers, for crucial policy and technical regulatory discussions at the global level. Engineer Majed Sultan Al Mesmar Director General of the UAE Telecommunications and Digital Government Regulatory Authority (TDRA) said: "The United Arab Emirates is delighted to extend a warm welcome to ITU Members to the city of Dubai for WRC-23. As a major hub and global leader in the digital economy, the UAE is keen on supporting ITU in the vital task of allocating global resources such as radio-frequency spectrum and satellite orbit positions to create a seamless, reliable, and innovative global communication system." International cooperation maintained through the four-year conference cycle supports the availability of, and future investment in, radiocommunication services that are free of harmful interference. "WRC 23 will play a key role in shaping the future of technical and regulatory framework for the provision of radiocommunication services in all countries," said Mario Maniewicz, Director of the ITU Radiocommunication Bureau. "The economic opportunities brought about by technology should be available not only for some of us, but for all. I am delighted to see ITU Members making steady progress to ensure a successful conference next year."

Radio Regulations updates Delegates to the conference – a direct governing body for ITU's Radiocommunication Sector (ITU-R) – are expected to consider the results of technical studies on specific matters on the agenda, and to revise the Radio Regulations accordingly. Such revisions will serve to expand access to radio frequencies for various services and applications, including broadcast services, emergency communications, and satellite and space services, wherever needed worldwide. The flagship conference will be preceded by the Radiocommunication Assembly (RA-23), taking place from 13 to 17 November 2023 at the same venue. Over 4,000 delegates are expected to attend WRC-23 and RA-23, from ITU's 193 Member States. Also, in attendance as observers will be representatives from the 278 ITU Radiocommunication Sector Members, representing varied stakeholders including equipment manufacturers, telecommunications companies, network operators, international organizations, and industry forums, as well as representatives from ITU's United Nations sister agencies, regional telecommunication organizations and intergovernmental organizations operating satellite systems, and academia. The preparatory process for WRCs involves extensive studies and technical discussions among governments, regulatory authorities, network operators, and equipment suppliers, along with industry forums and spectrum users at the national, regional, and global levels. The multi-stakeholder approach enables consensus-building, essential for each WRC to foster a stable, predictable, and universally applied regulatory environment.

TRA Bahrain to Host MENA Telecoms and Media Forum

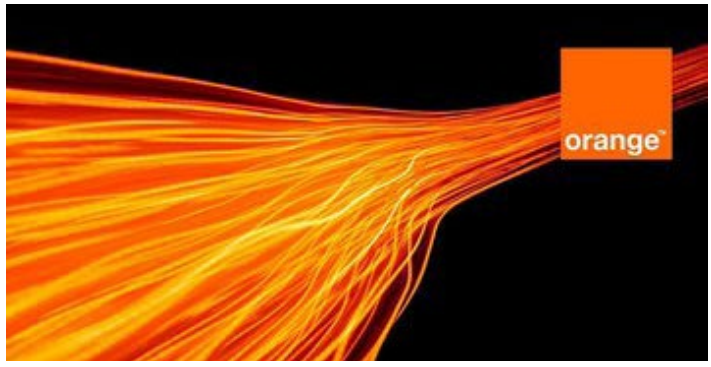
TRA Bahrain will host the Telecommunications and Media Forum (TMF) on September 14-15. The event will host telecom and media regulators from across the Middle East and for a two-day forum to discuss the industry's priorities and best practices. The TMF is organized with the International Institute of Communications (IIC). Speakers from Bahrain, Saudi Arabia, Jordan, UK, USA, Germany, and many other countries will provide a high-level regional view on topics such as digital transformation, innovation and competition, infrastructure and connectivity, digital media and on-demand services, and privacy, safety and security. Members of civil society and policymakers will also attend the forum. "The telecoms industry in the MENA region is rapidly changing with the development of new technologies and services. Regulators must adapt to this evolving landscape to ensure innovation flourishes and new services are delivered," TRA General Director, Philip Marnick said. "We need to ensure consumers get access to the services and features they need while being protected on-line. Bahrain, one of the most connected and advanced telecommunications markets in the world is proud to host the Telecommunications and Media Forum. The forum will allow participants to learn from each other and discuss effective approaches to the market challenges we all face. We look forward to presenting Bahrain's experience as one of the world's most advanced and competitive markets – with world leading 5G coverage and extensive fiber availability and playing a leading role in shaping the future of the telecommunications industry." Founded in 1969, the IIC shapes the global policy agenda for the ICT and digital ecosystem. Its members believe that the impact of technological innovation on society should be evaluated and openly discussed, and that policy and regulation should maximize public interest and promote innovation and investment.

NCC is Planning to License More Companies to Operate as MVNOs

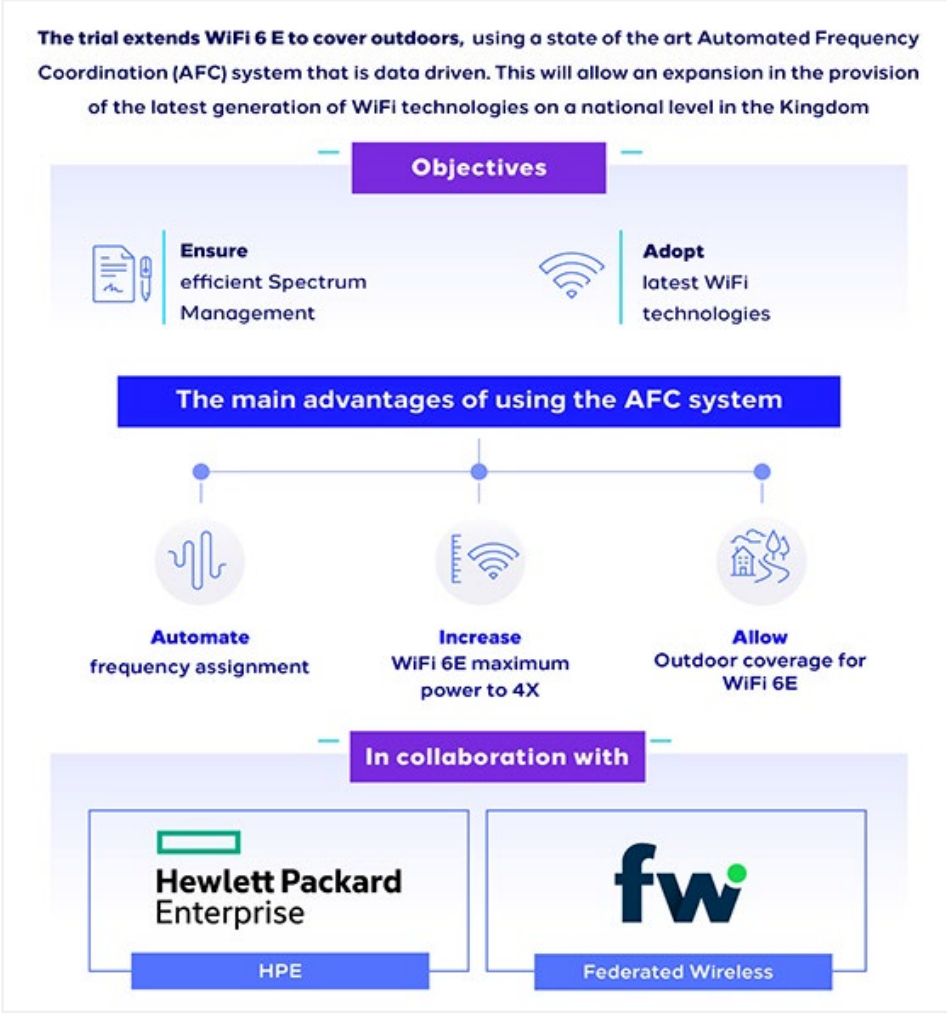
The Nigerian Communication Commission (NCC) is planning to license more companies to operate as MVNOs in Nigeria. Earlier this week, the authority invited applications for the MVNO concessions, which will be classified into five different tiers: virtual operator, simple facilities operator, core facilities operator, virtual aggregator/ enabler and unified virtual operator. The regulator added that 'tier 1-4 entrants are expected to pay 5% of the license fees as non-refundable administrative charges, while tier 5 entrants [for the unified virtual operator concessions] are to pay NGN50 million [USD119,127] non-refundable administrative fees prior to negotiations with the MNOs.'

Government to Offload 10% Stake in Orange Cote d'Ivoire

The government of Cote d'Ivoire has announced plans to sell a 9.95% stake in national telco Orange CI, leaving it with a 5% interest. Agence Ecofin reports that 14.99 million shares will be sold at XOF9,500 (USD14.77) per share, raising a total of USD221 million for government coffers. 80% of shares will be reserved for Ivorian nationals. A timetable for the share listing has not yet been published. Orange Group of France owns 72.52% of Orange CI.



CITC Performed the Globally First Live Demo of the AFC System to Enable Wi-Fi 6E Technology



The Communications and Information Technology Commission has performed the first global live demo of an end-to-end AFC system to enable WiFi 6E technology, which aims to enable outdoor WiFi 6E usage, in collaboration with HPE and Federated Wireless. This trial is a continuation of Saudi Arabia's global leadership as the country with largest amount of license-exempt spectrum globally and the first country in Europe, Middle East and Africa to make the entire 6 GHz band license-exempt. The demo is an important milestone for adopting the data-driven of spectrum smart management in Saudi Arabia as well as expanding the capabilities of WiFi 6E to enable the full realization of the potential of WiFi technologies while protecting existing users in the band, in addition to expanding collaboration between the commission and its global partners. The commission also seeks to adopt the latest spectrum management systems and technologies to further enhance the quality of wireless services such as public WiFi and enable the widespread adoption of WiFi 6E across Saudi Arabia. These efforts are also a continuation of CITC's global leadership in wireless technologies and WiFi 6E, in line with its mandate to support the digital transformation of KSA as its digital regulator.

WOM Closes Avantel Long-Running Merger

The long-running merger between Colombian sister companies Partners Telecom Colombia (WOM) and Avantel closed on 19 August, after belatedly receiving the green-light from the Superintendency of Companies (Superintendencia de Sociedades) on 14 July. WOM has urged Avantel customers to swap their SIM card free of charge at a WOM retail branch ahead of 26 September, at which point 'Avantel will cease to exist as an operator'. The ability to recharge pre-paid subscription balances was scrapped on 22 August. Back in May 2021 mobile newcomer WOM announced plans to stage a 'merger by absorption' of its sister company, Avantel. WOM was created by Icelandic-owned, UK-based private equity firm Novator Partners in 2019 to bid in the country's multiband spectrum auction. Subsequently, in July 2020 it was confirmed that Novator had acquired an unspecified majority stake in debt-wracked local telco Avantel and launched a restructuring of the business.

DoT Updates RoW Rules to Accelerate 5G Rollout

India's Department of Telecommunications (DoT) has amended the rules concerning Right of Way (RoW) with the intention of accelerating 5G network construction. The amendment introduces new rules that set out the conditions and fees for the use of street furniture, the installation of small cells and telephone lines and establishes that permission is not required from authorities for the installation of telecom infrastructure over private property as long as written notice is given beforehand along with certification from a structural engineer attesting to the structural safety of the building where the mobile tower or pole is to be established. In addition, the amendment clarified elements of the existing rules, which require that all RoW applications are submitted via the DoT's portal and adjusted the administrative fees related to RoW. Discussing the amendment, Telecom Minister Ashwini Vaishnaw said: '5G requires more towers, poles, fiber and bandwidth. This will require the telecom industry to launch more telecom infrastructure.' The official went on to note that the introduction of the central portal for RoW had led to a substantial reduction in approval time for applications in the areas where the rules have been fully implemented, from 435 days in 2019 to 16 days in July 2022. The minister also claimed that 5G services would be launched in major cities by October this year, following which deployments would be accelerated to cover sub-urban and rural areas. The Economic Times quotes SP Kochhar, DG of industry group Cellular Operators Association of India (COAI) as saying of the amendment: 'Access to the existing infrastructure, deployment of new infrastructure and the high cost involved in it were major challenges the telecom sector always came across, which will now be eased down with the new RoW rules.'

3.5GHz 5G Permitted in Four More State Capitals; Other Locations Postponed Until 28 October

Brazil's National Telecommunications Agency (Agencia Nacional de Telecomunicacoes, Anatel) has confirmed that the country's national mobile operators are able to launch Standalone (SA) 5G services using the 3.5GHz frequency band in a further four state capitals a week ahead of schedule. Florianopolis (Santa Catarina), Palmas (Tocantins), Rio de Janeiro (Rio de Janeiro) and Vitoria (Espirito Santo) all received the green light on Thursday 18 August and 5G services can be switched on from Monday 22 August. In a related development, Anatel's Board of Directors has approved the postponement of the release date for 5G frequencies in all other state capitals to 28 October, as suggested by the government's Group for the Implementation of Solutions for Interference Problems (Grupo de Acompanhamento da Implantacao das Solucoes para os Problemas de Interferencia, GAISPI). Brasilia was the first location green-lit for SA 5G, with Vivo, TIM and Claro all switching on services during the week commencing 4 July. Belo Horizonte, Joao Pessoa, Porto Alegre were next in line (29 July), with Sao Paulo following on 4 August, and Curitiba, Goiania and Salvador joining them on 16 August.

Macau Readies 5G Sale After 2 Operators Line Up

The Macau Post and Telecommunications Bureau (CTT) indicated two operators expressed interest in participating in a 5G spectrum auction, although four licenses to operate the next-generation technology networks are potentially up for grabs. Macau Telecommunications Company (CTM) and China Telecom (Macau) each submitted their proposals by the deadline of 12 August. SmarTone and 3 Macau appear to have opted not to take part. The CTT explained the next step will be to open the bidding today (15 August). Efforts will then be made to carry out the award and licensing processes during 2022. Commercial 5G services are expected to be introduced in early 2023. CTM claims its 5G network has been fully operational since June 2021. Meanwhile, mobile operators in Hong Kong launched 5G services in Q2 2020.

FCC 2.5GHz Auction Ends with $428M in Bids

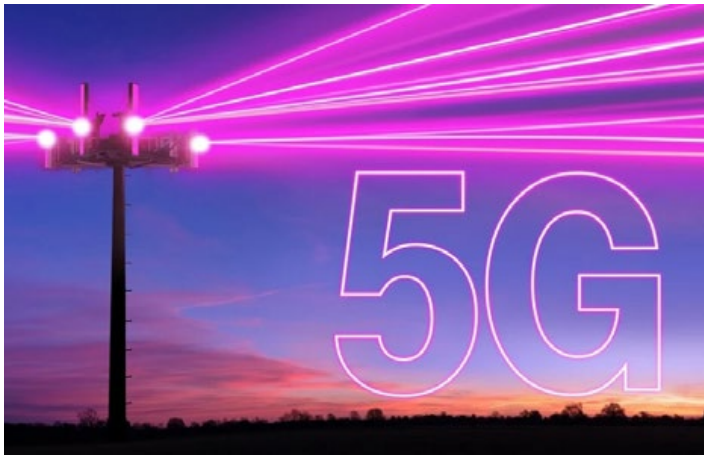
The US Federal Communication Commission's (FCC) 2.5GHz spectrum auction wrapped up today (29 August) after $427.8 million was raised across 73 rounds of bidding, but it could be a week or so before the results are released. The winning bidders will be revealed when the FCC releases a public notice that provides details about where each bidder won licenses in the auction, according to BitPath COO and auction analyst Sasha Javid. The money raised was a far cry below the amount some analysts had predicted prior to the auction's start on 29 July. Blair Levin, policy adviser for Newstreet Research, previously estimated the auction could raise between $1.5 billion and $5.5 billion, but there was little incentive for other mobile operators, such as Verizon, AT&T and Dish Network, to bid because T-Mobile US already owns or leases large portions of Educational Broadband Service (EBS) 2.5GHz spectrum. "With only one well-heeled serious bidder who has an incentive to use the licenses, it was always clear the auction results were going to be a bargain for T-Mobile," said Recon Analytics analyst Roger Entner in an email to Mobile World Live (MWL). "Other bidders had only a chance of winning when T-Mobile did not want the license." The auction, which the FCC called Auction 108, was comprised of 8,017 county-based overlay licenses in the 2.5GHz band. Auction 108 covered blocks in 49.5MHz, 50.5MHz and 17.5MHz in each county, with licenses mostly in rural areas.

Two Subcommittees Vote Against True-DTAC Merger

Two out of the four subcommittees set up by telecoms regulator the National Broadcasting and Telecommunications Commission (NBTC) to assess the impact of the planned merger of True Corporation and Total Access Communication (DTAC) have voted against the deal, the Bangkok Post writes citing a source close to the regulator's board. The law subcommittee voted 10-1 against the merger and the consumer protection panel voted 6-2 against the deal with two abstentions, the source said. True and DTAC submitted the notification of their planned merger to the NBTC on 25 January 2022, with the deal approved by their respective boards in February. TeleGeography notes that DTAC and True Corp first agreed to combine their operations in November 2021. The initial merger plan was approved by their respective executive boards on 19 November, with the duo inking a memorandum of understanding (MoU) on 22 November for an equal partnership to form a new merged firm which will apply to be listed on the Stock Exchange of Thailand (SET). The deal is worth an estimated USD8.6 billion.

T-Mobile Spends USD3.5bn on Additional 600MHz 5G Spectrum

T-Mobile US has agreed to buy 600MHz mobile frequency licenses from two companies controlled by Columbia Capital covering approximately one-third of the US population for a total of USD3.5 billion. The licenses were already being utilized by T-Mobile's 5G network via exclusive leasing arrangements. T-Mobile disclosed the purchase agreements to the US Securities and Exchange Commission on 8 August 2022, wherein it agreed to pay USD1.9 billion to Channel 51 License Co and USD1.6 billion to LB License Co. Deal closure is expected within 180 days of regulatory approval (pending), with T-Mobile anticipating a date in mid-to-late-2023. The 600MHz spectrum licenses range from 10MHz to 30MHz per market and cover parts of major cities including San Francisco, Atlanta, Chicago, Los Angeles, Boston, Tampa, Columbus, Minneapolis, Seattle, Philadelphia, Baltimore, Washington DC, Dallas, Phoenix, Houston, Salt Lake City, Saint Louis and New Orleans. The 600MHz spectrum underpins the T-Mobile 'Extended Range 5G' service currently covering 95% of the US population. T-Mobile was the biggest spender in the 600MHz nationwide auction completed in February 2017, paying USD8.0 billion for 1,525 regional licences, ahead of DISH Network which bid USD6.2 billion for 486 licenses. Channel 51 paid USD859 million for eight licenses at the auction, while in December 2017 LB License bought AT&T's entire 600MHz allocation (after AT&T had bid USD910 million for 23 licenses). Fierce Wireless writes that T-Mobile began leasing the extra 600MHz spectrum from the two Columbia Capital-affiliated firms in 2020 to boost capacity during the COVID-19 crisis, signing a three-year paid leasing agreement. T-Mobile has also been leasing 600MHz licenses from DISH since the early days of COVID; according to New Street analysts cited by Fierce Wireless, T-Mobile is currently leasing 'slightly more spectrum from DISH (than from Columbia) at an annual rate of USD56 million.'



PTA Directs Telecom Companies to Provide Free Calls in Flood Affected Areas of Balochistan

Following the devastating floods in Balochistan, Pakistan Telecommunication Authority (PTA) has directed service providers to facilitate their customers by providing free of charge services in the calamity-hit areas. A news release issued here on Tuesday said that PTA stood by the people of Balochistan, and would continue to monitor the communication channels in the food-hit areas and provide regular updates. Following the directions of PTA and as part of the corporate social responsibility, Jazz for the next seven days is offering free on-net (same network) and PTCL calls to its subscribers. There will be no call setup charges applicable on call connection, and customers having no balance will be able to make on-net calls.

US 2.5GHz Auction Passes USD400m Mark After a Month of Bidding

Bidding activity in Auction 108 – the Federal Communications Commission's (FCC's) sale of unused spectrum in the 2.5GHz band – remains sluggish as the process approaches the one-month mark. At the close of Round 59 (Wednesday 24 August) the gross proceeds stood at USD410.233 million. Tellingly, one-quarter of this figure was committed on the first day of the auction, and bidding has been underwhelming ever since. Auction 108 is offering approximately 8,000 flexible use geographic overlay licenses in the 2496MHz-2690MHz (2.5GHz) band. Up to three blocks of spectrum are being licensed on a county basis. Notable bidders include: Cellco Partnership (Verizon Wireless), AT&T Auction Holdings, United States Cellular Corporation (UScellular), T-Mobile License (T-Mobile US) and Cellular South Licenses (C Spire). As of Round 59 only 69 (out of 8,017) licenses have attracted more than one bidder, while 145 licenses have yet to attract a bid.

FCC Approves Sale of Lumen ILEC Business to Apollo; Deal Expected to Close in 4Q22

The Federal Communications Commission (FCC) has approved the previously announced sale of Lumen Technologies' incumbent local exchange carrier (ILEC) business in 20 states to funds managed by Apollo Global Management. With this approval, the transaction has now received all final regulatory clearances needed to close. Pending other customary closing conditions, the deal is expected to close early in the fourth quarter. Previously, on 3 August 2021 Lumen announced an agreement to sell its local consumer, small business, wholesale and enterprise customer ILEC operations in 20 states to Apollo-managed funds for USD7.5 billion, including the assumption of approximately USD1.4 billion of debt. Subsequently, in November 2021 Apollo announced that the assets would be rebranded as Brightspeed post-transaction. The new company will be headquartered in Charlotte, North Carolina.

Indonesian Govt Looking to Drive Telecoms Infrastructure Expansion

Indonesia's Minister of Communication and Information Johnny G Plate has said that the government is focused on accelerating the deployment of telecoms infrastructure across the country. The Jakarta Globe reports the minister as saying: 'Now there has been a technological disruption and the acceleration of digital transformation and so on, in which telecommunications must become enablers. The two major issues are not only in the ICT infrastructure but also in enabling it. This is what all of us must work on in a collaborative manner.' The minister confirmed that this includes providing internet access, base transceiver station (BTS), fiber-optic network Palapa Ring and multifunction satellite services.

Romania's ANCOM Lays Out 5G Auction Proposals

Romanian regulator ANCOM (National Authority for Management and Regulation in Communications) has begun a consultation on its upcoming 5G spectrum auctions. Spectrum in the 700MHz, 1500MHz, 2600MHz and 3400MHz-3800MHz frequency bands will go to auction later in the year, and ANCOM has proposed a reserve price of EUR694 million (USD693 million) for 555MHz of spectrum across all bands. The regulator has laid out its proposed allocations and reserve prices for each band. The 700MHz band will have six 2×5MHz blocks available at a reserve price of EUR55 million per lot, as well as three unpaired blocks of 5MHz SDL for EUR14 million per lot. In the 1500MHz band, eight unpaired blocks of 5MHz SDL will be available for EUR6 million per lot, while in the 2600MHz band four blocks of 2×5 MHz FDD will be up for auction with a reserve price of EUR3.25 million per lot. Finally, 40 unpaired blocks of 10MHz TDD will be available in the in the 3400MHz-3800MHz band for EUR6.5 million per lot. Licenses will be valid from either 2023 or 2026, with a validity period of 20 years. This does not apply to the 2600MHz band; there are active usage rights in this frequency which extend for another six years and three months, and so permits for this band that are sold in the upcoming auctions will be aligned with these. ANCOM's draft proposals require winning bidders to provide broadband coverage in urban areas and along major transport routes and hubs, as well as connecting 600 underserved localities. Stakeholders have until 27th July to provide feedback on the proposed license costs and payment terms.

FCC Establishes ECIP to Help Make Underutilized Spectrum Available to Rural Carriers, Tribal Nations

The Federal Communications Commission (FCC) has voted to create a new 'Enhanced Competition Incentive Program (ECIP)' to establish incentives for mobile licensees to make underutilized spectrum available to small carriers, Tribal Nations and entities serving rural areas. The new program encourages licensees to partition, disaggregate or lease spectrum to better match available spectrum resources with entities that seek to provide needed services to under-connected communities. The action builds upon Congressional goals in the 'MOBILE NOW Act' to incentivize beneficial transactions in the public interest. Transactions through the new program must offer at least half of the licensed spectrum from a given Wireless Radio Service license to an unaffiliated eligible entity for long-term use within specific geographic parameters.

Democrats Push for US Net Neutrality Reinstatement

US politicians Senator Edward J. Markey, Senator Ron Wyden and Representative Doris Matsui have introduced the 'Net Neutrality and Broadband Justice Act', as they seek to classify broadband access as a 'telecommunications service' under Title II of the Communications Act, giving the Federal Communications Commission (FCC) the appropriate authority to reinstate net neutrality protections. Senator Markey commented: 'The Net Neutrality and Broadband Justice Act reflects the undeniable fact that today, broadband is not a luxury. It is essential. That means the potential harms that internet users face without strong net neutrality protections and without the FCC able to exercise its proper authority are more sweeping than ever. My legislation would reverse the damaging approach adopted by the Trump FCC, which left broadband access unregulated, and consumers unprotected. It would give the FCC the tools it needs to protect the free and open internet, creating a just broadband future for everyone in our country.' According to TeleGeography's GlobalComms Database, in December 2017 the FCC voted in favor of repealing Net Neutrality rules. The plan was approved following a 3-2 vote – split along Republican-Democrat party lines. As such, the FCC's Restoring Internet Freedom Order took effect on 11 June 2018, scrapping the Title II rules and reverting internet services to their Title I 'information service' status.

EU Institutions Agree on Governance Framework for the Digital Transition

The EU Council, Parliament and Commission reached a political deal on the Path to the Digital Decade. The European Commission proposed the policy framework last September as a tool to support the national governments in their efforts to reach the Digital Decade targets, a set of objectives for the digital transition related to skills, infrastructure, technology uptake and e-governance to be reached by 2030. "This program will contribute to a modern, competitive, digitized, prosperous and educated society and to well-targeted digital transformation," said Ivan Bartoš, the Czech deputy prime minister for digitalization. The negotiation marks the first political agreement in the digital policy area for the Czech Presidency, which took over the helm of the EU two weeks ago and treated the file with high priority. The general objectives of the program have been modified compared to the original proposal with an enhanced focus on fundamental rights, transparency, security and the promotion of digital skills. Together with the member states, the European Commission will draft trajectories on how to reach the digital benchmarks. In turn, the EU countries will have to develop strategic roadmaps on how they plan to achieve the targets with measures such as regulatory measures and targeted investments. The national roadmaps will be reviewed in 2026. The progress will be monitored based on the Digital Economy and Society Index (DESI), a composite indicator that assesses the level of digital preparedness for each EU country. The EU executive will assess such progress in their yearly report on the State of the Digital Decade based on country-specific Key Performance Indicators (KPIs) to be defined via implementing acts. According to an addition in the preamble of the text, the assessment in these annual reports will also have to take into consideration the regional dimension, in other words, if a country's performance is affected by lagging regions. At the same time, EU lawmakers obtained that the member states will have to provide more information at the regional level. The extent to which the Commission will be able to issue recommendations to the member states that are not on track with the KPIs was a critical point during the negotiations – even a redline for 18 member states, according to an EU official.

What the EU countries did not want are policy recommendations of the same tone as the European Semester. As a result, the entire article on the recommendations has been removed from the final agreement. Thus, for countries that are not respecting their national roadmaps, the Commission will be able to initiate a dialogue that will lead to 'mutually agreed conclusions'. Moreover, the frequency of the cooperation between the member states and the EU executive has been extended from once per year to every two years. In exchange, MEPs managed to considerably water down the provisions that referred to the 'fair share', an initiative to make the most data-intensive online platforms contribute to the cost of digital infrastructure. A reference to the 'fair share' was added in the EU Council's mandate but was rejected in the European Parliament. In the final text, lawmakers obtained the removal of any reference to a 'fair' contribution to public goods, services and infrastructure, and turned it into non-discriminatory access for users. Another concession for the member states is the downsize of any reference to radio spectrum allocation, which the governments consider a scarce resource managed at the national level. The reference to the Declaration on Digital Rights and Principles for the Digital Decade was also moved to the text's preamble, as the EU Council was reluctant to include a proposal that has not been adopted yet. The policy program introduces the legal procedure to set up European Digital Infrastructure Consortia, pooling private and public funding for multi-country projects relevant to the digital transition like high-performance computing, data infrastructure, 5G networks, and cybersecurity centers.

Minister: Cellcos Must Create Mutual Assistance Plan to Cope with Network Outages

Canada's Minister of Innovation, Science & Industry, Francois-Philippe Champagne, has called on Rogers Communications and rival telecoms operators to forge a plan to boost the resiliency of cellular and internet networks after a massive outage last Friday left millions of Rogers' users offline and affected some critical services, CBC News reports. After many customers were denied service for around 15 hours due to disruption apparently caused by a maintenance update to Rogers' core network, the Minister convened a meeting of CEOs of Rogers, Bell and Telus on Monday to discuss ways to mitigate the effects of simi-

lar events in future. Mr Champagne stated that the major national operators should come up with a 'first step' plan within 60 days including measures to establish emergency call roaming facilities guaranteeing no customers are without access to 911 services, additional 'mutual assistance' between networks during outages, and a 'communications protocol' to keep users informed amidst such events. 'I wanted to make sure that in no uncertain terms they understand how Canadians found the situation unacceptable and they need to take immediate initial steps to improve the resiliency of our network in Canada,' he said. MPs have meanwhile called for a parliamentary investigation into the network outage and tougher regulations relating to network resilience.

MSIT Confirms First Commercialization of Shared Rural 5G Infrastructure

South Korea's Ministry of Science and ICT (MSIT) has announced the commercialization of the first phase of shared access to 5G networks belonging to the nation's mobile network operators (MNOs) in rural areas. Back in April 2021 cellcos SKT, KT and LG Uplus inked a deal under which they would allow shared access to their respective 5G networks in remote coastal and farm towns, with a view to accelerating the rollout of the mobile broadband technology. At that date the MSIT confirmed the signing of an agreement between the MNOs under which subscribers in 131 remote locations across the country would be able to connect to 5G networks, regardless of the carrier to which they subscribe. Now in a press release regarding the first phase of commercialization the MSIT noted that while it had initially envisaged the initial phase taking place 'at the end of 2022', it ultimately sought to finish inspecting areas where work had already been completed with a view to enabling access earlier than planned. Accordingly, the first phase of commercialization has now been split into two stages, this first taking place this month, with a second scheduled for December 2022. As per the information published by the MSIT, having completed test operations and infrastructure inspections in areas where network construction had been completed as of June 2022, it notes that the first phase of commercialization has been carried out in a total of 149 eups and myeons (administrative divisions) across 22 cities and counties.

Four Applicants for 5G Auction; DoT Updates Procurement Rules

The Department of Telecommunications (DoT) has published the list of applicants for the upcoming multi-band 5G spectrum auction, due to take place at the end of this month. Four companies have applied to participate in the tender, the three incumbent privately-owned cellcos – Bharti Airtel, Vodafone Idea (Vi) and Relance Jio Infocomm (Jio) – and infrastructure Adani Data Networks, part of Indian conglomerate Adani Enterprises. In a related development, meanwhile, the DoT has updated the phrasing of rules regarding equipment procurement to ensure that only so-called 'Trusted Products' or gear approved by the regulator is used for the expansion of existing networks. Previously, the rules had specified that licensees must seek permission from the regulator to upgrade existing networks using equipment that is not from a trusted vendor, but the new wording makes it clear that operators must also seek approval for network expansion works. As previously reported by CommsUpdate, the DoT issued a series of licence amendments in March 2021 to limit the vendors that could provide equipment for telecommunications networks, citing national security concerns. Those measures were introduced amidst escalating tensions between New Delhi and Beijing and were primarily intended to prevent operators from purchasing equipment from Chinese vendors such as Huawei and ZTE.

EU Antitrust Regulators Agree to T-Mobile and O2's Czech Network Sharing Concessions

Antitrust regulators in the EU agreed to concessions offered by T-Mobile Czech Republic, O2 Czech Republic and O2 sister company Czech telecoms infrastructure provider CETIN concerning a network infrastructure sharing deal between the companies, allowing it to end its investigation. Back in 2019 the European Commission accused the Czech operators of limiting competition via the network sharing agreement they had inked in 2011. In October last year, meanwhile, the Deutsche Telekom-controlled and PPF Group-owned units set out amendments to the sharing agreement after receiving feedback from rivals and end users, prompting the EU's favorable response. Commenting on the matter, Commission Vice-President Margrethe Vestager said: 'The Commission made binding commitments offered by T-Mobile CZ, CETIN and O2 CZ that will keep the benefits of network sharing whilst removing technical and financial disincentives to unilateral deployments and limiting information exchange, all to the benefit of Czech mobile user'. In an effort to allay concerns, the Czech operators have offered to modernize the mobile network by building multi-standard RAN equipment in 'certain radio frequency layers, alongside ensuring provided investments or services have cost-based pricing'. These final commitments will now remain in force until 28 October 2033.

syniverse®

Private Networks don't have to be Islands

Syniverse's Private Wireless Network solution allows mobile devices to roam seamlessly between private and public networks extending a private network's reach both regionally and internationally.

www.syniverse.com

+971.4.375.9644

ARTICLE

Enabling Private Network Interoperability with Public Networks

Private wireless networks are driving innovation across multiple industries from manufacturing to healthcare and beyond, enabling enterprises to harness data quickly, securely, and more accurately. And ultimately, leading to faster and better decision making.

Enterprise private cellular networks, concentrating largely on broadband applications in industries such as education, manufacturing, health care, public venues, office campuses, and retail locations had an estimated market of $1.7 billion in 2021. The market is expected to grow at a CAGR of 36%, reaching $8.3 billion by 2026, according to IDC1. These private wireless networks offer enterprises wireless connectivity beyond that of WiFi, supporting a multitude of stationary Internet of Things (IoT) and mobile devices with expanded capacity, bandwidth, the promise of lower latency and, as required, mobility beyond the premise.
However, many of these IoT devices may not remain sedentary;

> *It is critical for enterprises to establish both a functioning private wireless network that not only provides the infrastructure, management, and capabilities of a cellular network, but to also have the ability to support mobile devices as they roam between the private and public networks*

they might be nomadic and require connectivity beyond the private network as they traverse both regionally and internationally. Device communication is then required past the confines of the private network and into different networks creating a connected world. Maintaining seamless and secure connection from a local private network as it transitions onto a public network is becoming increasingly crucial to many applications – from transportation to logistics to college campuses and medical facilities.

Kathiravan Kandasamy
Senior Product Management Director
Syniverse Technologies
Syniverse

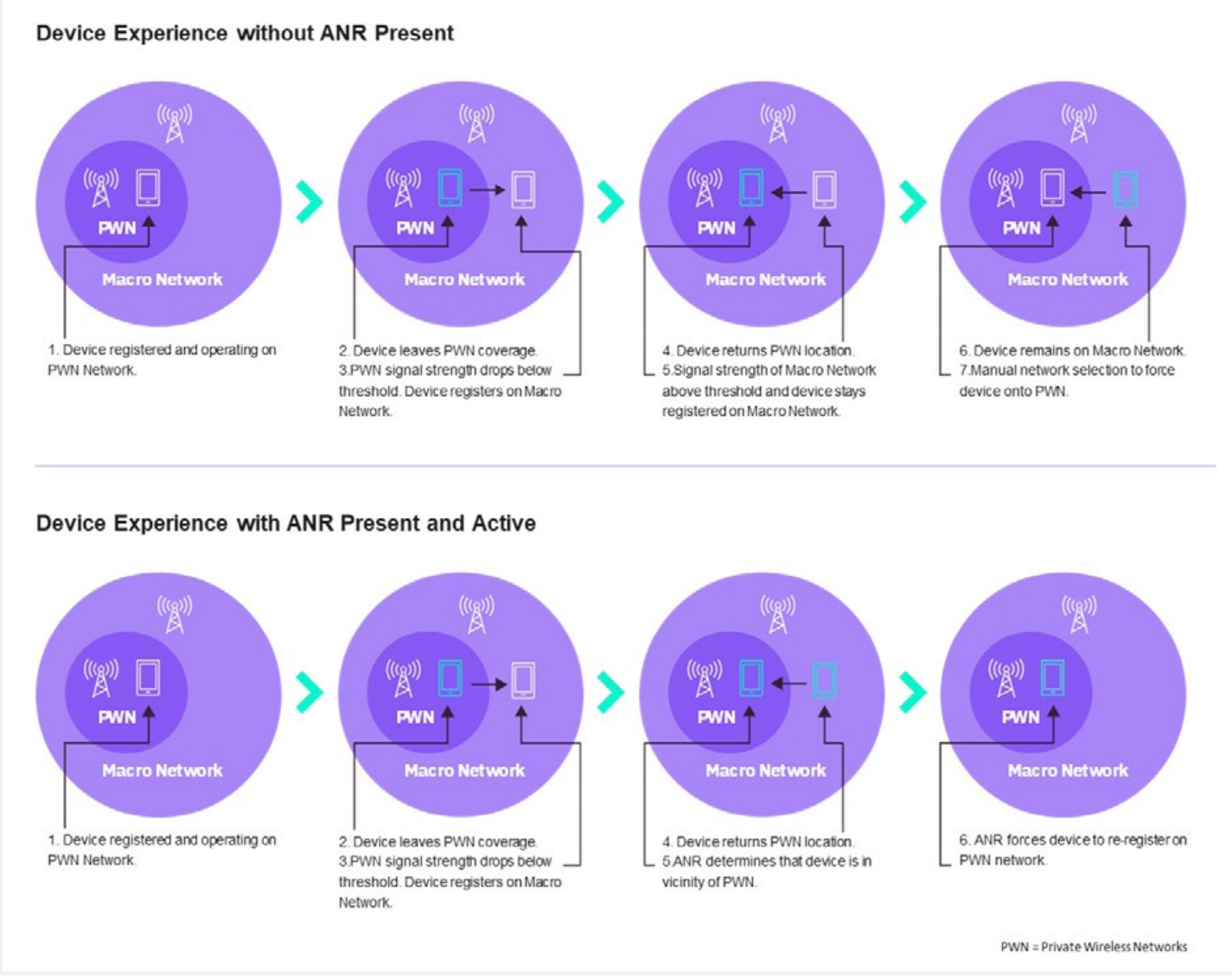
Additionally, having the power to maintain data integrity by keeping information originating within a private network secure as it moves from the sanctity of the private network to an external application, completely avoiding the public internet, is a tremendous advantage for organizations looking to maintain a level of security and network performance.

With that said, there are challenges associated with the implementation and enablement of private networks that both enterprises and operators are facing. For enterprises, it is the need to navigate a new modern communication backbone to enable the cellular connectivity both locally and beyond the boundaries of their properties. For mobile operators, it is the capability to manage the overwhelming influx of private network requests and relationships. It is critical for enterprises to establish both a functioning private wireless network that not only provides the infrastructure, management, and capabilities of a cellular network, but to also have the ability to support mobile devices as they roam between the private and public networks.

Let's look at manufacturing. A large automobile manufacturer will have multiple manufacturing facilities located both regionally and likely internationally. Each location manufactures components which are then shipped to other locations, eventually arriving at a final assembly location.

Within each location, private networks support the communication needs a modern smart factory requires.

ANR's functionality solves the challenge of network selection when private and public networks have overlapping coverage.ANR is a vital feature within Syniverse's Private Wireless Network solution along with Global SIM with Multi-IMSI support and Mobile Policy Control Center.



How ANR plays a critical role in registering mobile devices on a private and macro network.

Communication infrastructure enables automation, which in turn drives process speeds while maintaining costs. Asset monitoring is critical in these cases, along with visibility into maintenance issues.

Using a hosted and managed International Mobile Subscriber Identity (IMSI) and Subscriber Identity Module (SIM) is vital to device communication and establishing productive collaboration with the private network location.

Connectivity outside the private network is increasingly critical. Manufactured parts from one location shipped to the next location will leave the coverage of the private network. Roaming with the macro network extends connectivity beyond the factory. Parts can be identified, tracked, and monitored with the implementation of a hybrid model. This private-public inter-operability is now possible with seamless and secure connectivity provided by Syniverse's Private Wireless Solution.

For mobile devices that enter a private network that resides within a larger public network's cellular footprint, the ability for this device to seamlessly move between networks is essential to ensure data captured from the device remains within the domain of the private wireless network. A device activated within overlapping private and public network coverage may register to the public cellular network and not register to the private network. As a result, users will need to manually register to the private network, a step that is typically not possible for IoT devices.Achieving automated switching from one network to another when appropriate conditions are met and maintaining communication sessions at the application level are key to establishing superior experience levels for both users and IoT devices.

To accomplish this, Syniverse has developed and patented a technology called Automated Network Reselection (ANR). ANR enables a mobile device with a single SIM to reconnect to its designated private mobile network upon return from the public macro network. ANR's functionality solves the challenge of network selection when private and public networks have overlapping coverage.

ANR is a vital feature within Syniverse's Private Wireless Network solution along with Global SIM with Multi-IMSI support and Mobile Policy Control Center.

The benefits of private wireless networks will continue to make them attractive for various sectors across enterprises and beyond. While the isolation they offer allows the allocation of inherently secure bandwidth for local devices, it also creates private network islands – a challenge for devices needing the flexibility to roam beyond the local network's border. Implementing capabilities that permit connected devices to roam both domestically and internationally and seamlessly reconnect to the private network resolves critical communications issues will be important as the world becomes increasingly more connected through the current 4G and quickly growing 5G platforms.

Syniverse has developed and patented a technology called Automated Network Reselection (ANR). ANR enables a mobile device with a single SIM to reconnect to its designated private mobile network upon return from the public macro network. ANR's functionality solves the challenge of network selection when private and public networks have overlapping coverage.

About the author:

Kathiravan is a Senior Product Management Director in the Carrier Business Unit of Syniverse. He is responsible for the management and growth of products that form Syniverse's IoT and Private Wireless pillars. These 'Next Generation Solutions' drive the development of emerging connectivity products, such as Global SIM & eSIM, Private LTE, Sponsored Roaming, Open Connectivity Complete and Secure Global Access, and combine them in seamless ways to support various IoT use cases.

Kathiravan has been in the telecommunications industry for over 20 years and has been deployed around the world to deliver products and services, specializing in new product introduction. He has a bachelor's degree in computing (Hons) from University of Portsmouth, UK, and has been PMP certified since 2009.

Transform your platform with OmniClouds

OMNI CLOUDS
A Platform To Transform

- Secure connectivity to cloud applications
- Pay-as-you-go model for futuristic technologies
- Optimized data centers with branch-to-branch connectivity
- Speed & easy accessibility on a global scale

Europe, Asia, Africa and Middle East

TRANSFORM YOUR PLATFORM

Get in touch today for a free assessment:

marketing@omniclouds.com

+971 52 578 6605

www.omniclouds.com

@omnicloudz @omni.clouds @omniclouds

A SNAPSHOT OF REGULATORY ACTIVITIES IN THE SAMENA REGION

Bahrain

The Telecommunications Regulatory Authority (TRA) announced that Internet users in Bahrain will soon be able to benefit from faster and more efficient Wi-Fi 6 technologies, allowing them to enjoy the full capabilities of both fiber and 5G. This is in line with the Kingdom's adoption of radio spectrum ranges 5470 – 5725 MHz and 5925 – 6425 MHz for Wi-Fi 6 and Wi-Fi 6E applications. TRA said that Bahrain has one of the most extensive fiber optic deployments in the world, with 5G deployments that spans the entire Kingdom. Wi-Fi 6 new features will enhance the consumer experience by increasing capacity and performance. It lets routers communicate with more devices at once and send data to multiple devices at the same time. This is of more significance as the average number of connected devices in a Bahraini household is expected to continue to increase. TRA General Director Philip Marnick said: "Bahrain is one of the most connected places in the world and internet users expect to be able to use the full potential of both our extensive fiber and 5G coverage. Opening this new Wi-Fi spectrum will not only enable everyone in Bahrain to access the services they want today; it will also allow them to make full use of new technologies and capabilities as they become available." "We want to ensure Bahrain is the best place in the world to access the internet and for companies to test their innovations," he added. The authority noted that the new radio spectrum in place, commercial and government organizations will be able to offer enhanced services, enabling the Kingdom to continue enhancing its global Information and Communications Technology (ICT) deployment ranking. (August 17, 2022) www.bna.bh

The Telecommunications Regulatory Authority (TRA) has announced on its website its decision in response to complaints submitted against Batelco regarding its fiber broadband speed offer which was introduced in July 2020 and lasted for a period of 9 months. According to the Authority's Decision, consumers who had subscribed to Batelco's fiber broadband packages during this period may exit their contract(s) and switch to another fiber broadband service provider without paying any termination charges. This not only applies to subscribers during the period, but also to users who have been offered the fiber broadband packages without renewing their contracts. Consumers will be notified of this by Batelco during the first week of August. Switching between operators in Bahrain is simple, as the Kingdom's fiber infrastructure is provided by a single provider BNET. Therefore, customers wishing to end their contract with Batelco may use another competitive service provider for a comparable service, or may renew their existing contract with Batelco should they wish to do so. Mr. Philip Marnick, General Director of TRA Bahrain stated "To further promote competition and stop any behaviors which may restrict it – the TRA will always act. The TRA seeks to encourage a dynamic competitive market which works well for consumers. We all rely on telecoms services every day - telecoms are essential. The TRA looks after the interests of consumers while ensuring we have fair competition between operators." (August 3, 2022) tra.org.bh

The Information and eGovernment Authority (iGA) revealed the results of its channels performance during the first half (H1) of 2022, which included a significant spike in online payments. Financial transactions jumped 55% to approximately 1.9 million, bringing in BD334 million in revenue via the iGA's various digital channels, including the National Portal, bahrain.bh, the eGovernment Apps Store, bahrain.bh/apps, and eKiosks. There was also a 12% increase in the number of government apps users compared to the same period in 2021 .and 9,789,000 visits to the portal during the first half of 2022 , an increase of 31%. iGA Deputy Chief Executive of eTransformation, Dr. Zakariya AlKhajah said that the increase in online transactions is in line with directives by the Kingdom of Bahrain's leadership to introduce digital transformation strategies and initiatives across all areas of the government. He added that the iGA is committed to implementing the decisions of the Ministerial Committee for Information and Communications Technology, chaired by the Minister of Interior, General Shaikh Rashid bin Abdulla Al Khalifa, which aims to accelerate the development of services in cooperation with other government entities by setting policies, deploying advanced technologies, and enhancing overall performance. Services are offered via digital channels, contributing to a better quality of life for citizens and residents, who have shown increasing acceptance of government apps downloadable from the eGovernment Apps Store. He attributed this rise in demand to Bahrain's advanced digital culture, adding that the iGA is looking to introduce additional features and services to enhance the user experience even further. AlKhajah said that the directives of the Minister of Interior have served to motivate these enhancements. The iGA is dedicated to swifter digital transformation through the diversification of online government services and ensuring they meet the requirements of all stakeholders. It ensures that they are offered as an alternative to traditional services, helping to save the public time and effort by eliminating the need for physical visits to service centers. This requires a sophisticated restructuring of the services by the iGA in collaboration with other government entities. He said that the iGA is currently working on launching a large number of additional eServices this year. The total number of eServices currently provided by the iGA's currently stands at 569, including 440 via the Portal, 19 via eKiosks, and 110 via mobile apps. The H1 2022 report revealed a major trend among citizens and residents to carry out transactions via government

mobile apps, accounting for 47% of payments, with the remaining 53% carried out via the Portal. This was a 12% increase compared to the same period last year. The most popular apps were BeAware Bahrain, Islamiyat, and eTraffic with an increase of 88%, 81%, and 55% respectively. Over 1.2 million transactions were carried out via the Portal, totaling more than BD306 million in revenues during H1 2022, an increase of 62% compared to the same period last year. These results reflect the public's awareness of the value of online services. Gold Visas, first time passport issuance, Good Conduct Certificate requests, and civil records updates were the most in-demand eServices on the Portal. (July 7, 2022) bahrainbiznews.com

Bangladesh

The Bangladesh Telecommunication Regulatory Commission (BTRC) has decided to ban import, assembling and manufacturing 3G-only handsets to promote widespread adoption of smartphones and expand digital transformation in the country. The ban will be effective from January 1, 2023, according to a decision taken in the latest commission meeting of the telecom regulator. The BTRC believes 3G-only handsets are hindering expansion of 4G mobile networks in the country. Manufacturing of 3G-only handsets in the country has become almost zero, as local manufacturers produce only a few thousands of such handsets this year, according to the BTRC statistics. But some importers, under "Mobile Phone Handset Manufacturer and Vendor Enlistment" and "Radio Equipment Importer and Vendor Enlistment" categories still import 3G-only handsets. The BTRC has decided not to provide those importers NOC (no objection certificate) for import of 3G-only handsets after December 31 this year. Meanwhile, production of smart-phones by the local companies is declining, but that of feature-phones is increasing - at a time when the country is heading towards 5G technology. According to data, 69.60% of the total handsets manufactured in the country are feature-phones, while 30.40% are smartphones. In June 2022, the production of smart-phones (4G and 5G) in the country was 880,000 units, while that of 2G or feature-phones was 2.15 million units. According to the Bangladesh Mobile Phone Importers Association, the mobile handset market in the country is worth over Tk10,000 crore. The annual demand for mobile phone handsets is more than 35 million units, of which 11 million units are smartphones. As of January 2021, local manufacturers supplied almost 80% of the country's mobile phone requirement. The sector has generated more than 15,000 jobs. Currently, 15 companies have licenses to manufacture mobile handsets. Among these are - Walton Digi-tech Industries Ltd, Fair Electronics (brand: Samsung), Edison Industries (Symphony), Alamin and Brothers (5 Star), Carlcare Technology BD Ltd (itel and Tecno), Anira International (Yunstar), Best Taicool Enterprise Ltd (Vivo), Grameen Distribution (Lava), Banglatrinic Technology (DTC), Benley Electronic Enterprise (Oppo), Okay Mobile, and Mycel Technology. To encourage local manufacturing and assembling of smart-phones and to attract foreign investment, the government has taken steps through its "Made in Bangladesh" program. (August 24, 2022) www.dhakatribune.com

The Bangladesh Telecommunication Regulatory Commission conducted an operation in Rohingya camps and surrounding areas at Ukhiya and Teknaf upazilas of Cox's Bazar in collaboration with the local administration and Rapid Action Battalion. A BTRC inspection team, led by its enforcement and inspection director MA Taleb Hossain, assistant commissioner (land) Md Taj Uddin and an executive magistrate, conducted the drive with the help of RAB-15 team from Hoaikang camp. Drives were conducted at Kutupalong bazaar, Alam Market, Bakhtiyar Market, Ukhiya bazaar and Chowdhury Market of Court bazaar area. A total fine of Tk 9 lakh and 70 thousand was imposed on several shops for selling fake and counterfeit mobile handsets, walkie talkies, and fake SIMs. 136 illegal and fake mobile handsets, walkie talkies, fake SIMs and other fake telecommunication equipment were seized, said a press release. In addition, a drive was conducted in the office of the unlicensed internet service providers at Chowdhury Market in Court Bazar area of Ukhiya and various unauthorized telecommunication equipment were seized.

(August 4, 2022) www.newagebd.net

The telecom regulator withdrew the directive under which 50 per cent bandwidth of aamra technologies was blocked because of non-payment of outstanding revenue of over Tk 33 crore. The Bangladesh Telecommunication Regulatory Commission (BTRC) withdraw the directive as the international internet gateway (IIG) operator has recently cleared the dues. The BTRC in a letter said the directive to block aamra technologies' 50 per cent bandwidth and to refrain from providing upstream connections and upgradation of existing connections has been revoked. This withdrawal order will be effective from today, a top official of the BTRC told The Daily Star. However, he said aamra is yet to clear all the dues. Earlier on July 18, the commission issued a letter directing the International Terrestrial Cable to cap bandwidth supply to aamra technologies to 50 per cent. Aamra technologies supplies bandwidth to different clients, including Grameenphone, Robi Axiata and Banglalink.

(July 27, 2022) thedailystar.ne

Bangladesh Telecommunication Regulatory Commission (BTRC) recently received around BDT 2.8 Crores as fines from three mobile phone operators of the country over the allegations of operating illegal VoIP (Voice Over Internet Protocol). A total of BDT 2,78,25,000 fines have been collected from telecom operators Robi, Grameenphone and Banglalink, said BTRC in a press release. Robi paid BDT 2.10 Crore, Grameenphone paid BDT 52.5 lakh and Banglalink BDT 5.75 lakh between July 12 to 14. On April 10, the operators were asked to pay the fines after a hearing by the commission under sub-section 5 of section 65 of Bangladesh Telecommunication Act, 2001, over the use of SIMs (subscriber identity module) used in illegal VoIPs.

(July 14, 2022) thedailystar.ne

Egypt

The National Telecommunications Regulatory Authority's (NTRA) released the first semi-annual report on telecom-user complaints for the period between January and June 2022. NTRA is a strategy to support the user rights and ensure high-quality services in Egypt's market. The report shows the most important indicators with respect to landline, mobile, fixed internet and mobile set complaints. It also displays the rate and time of response to such complaints post escalation to NTRA. NTRA actually gets telecom-user complaints regarding operators via call center on (155). In Addition, it has recently provided new e-channels to facilitate communication with users as well as to deliver non-traditional channels for complaints; such as, MyNTRA App, NTRA's website, e-mail address as well as instant messaging apps like WhatsApp. For this reason, 143235 complaints were received during the first half-year period of 2022 because of such procedures. Operators' response rate to complaints through the same period reached 89 percent whereas response time was 1.7 days in average. Complaints regarding mobile set, mobile service, fixed internet service as well as landline service are presented in details as follow: The overall number of complaints escalated by mobile set owners to NTRA regarding dealerships was 1937 during the first half-year period of 2022. Moreover, the rate of complaint-resolving reached 94 percent with an average time of 4.7 days. Most importantly, complaints were raised regarding poor technical support by 48 percent, rejection of mobile-set exchange by 31 percent, maintenance issues by 13 percent and re-occurrence of problem post repair by 8 percent. The average time taken for resolving complaints per dealership was as follow; Safi by 3.6, I2 by 4.5, Ro'ya by 4.6, Raya by 5, Sky by 5.5 days. Number of mobile complaints was 66/ 100 thousand subscribers, whereas the response rate to complaints after being escalated to NTRA had got 92 percent and the average response time had been 0.72 days.
Vodafone: Number of complaints escalated against Vodafone was 64/ 100 thousand subscribers.
Orange: 77 complaints/ 100 thousand subscribers were escalated against Orange.
Etisalat: Number of complaints escalated against Etisalat was 57/ 100 thousand subscribers.
WE: Number of complaints escalated against WE was 58/ 100 thousand subscribers.
Number of fixed internet complaints was 442/ 100 thousand subscribers, whereas the response rate to complaints after being escalated to NTRA had reached 94 percent and the average response time had been 2.07 days.
Vodafone: Number of complaints escalated against Vodafone was 755/ 100 thousand subscribers.
Orange: Number of complaints escalated against Orange was 1219 complaints/ 100 thousand subscribers.
Etisalat: Number of complaints escalated against Etisalat was 825/ 100 thousand subscribers.
WE: Number of complaints escalated against WE were 345/ 100 thousand subscribers. Landline complaints scored a number of 295/100 thousand subscribers, whereas the response rate to complaints after being escalated to NTRA had reached 77 percent with an average response time of 2.75 days. Cash amounts of 3.8 million refunded to users post entitlement by NTRA from operators.
(August 22, 2022) en.amwalalghad.com

The Minister of Communications and IT, Amr Talaat noted that Egypt is taking steady steps towards building a digital state. He made these remarks during the Egyptian-Lebanese Association of Businessmen's (ELBA). As remarked, The Egyptian Ministry of Communications and Information Technology has a three-axis strategy, digital transformation, providing highly efficient and stable telecommunication services, and providing digital job opportunities for youth. He announced that Egypt has entered into a new phase of digital services incorporating electronic signature. Previously the electronic signature system was activated in several stages, starting with its activation in government applications, where government employees used the electronic signature at work, then came the stage of activating the electronic signature system in applications for enterprises and companies which included examples such as the electronic invoice in cooperation with the Ministry of Finance. The latest phase is the application to citizens' services, where consular services for Egyptians residing abroad will begin. In addition, the government digital transformation project has also been implemented to enable government agencies to exchange data, allowing Egyptian citizens to utilize one government portal to access and transact with the government under the Digital Egypt Platform. Giant data centers have also been established at the highest technical level to host and preserve citizens' data. Digital Egypt platform currently includes more than 130 government services. Talaat noted, 'There are a number of digital transformation projects being implemented with investments of more than 15 billion EGP (Egyptian Pound) equivalent to almost 8 million USD. The projects include the digitization off the agricultural tenure system, health insurance system, the law enforcement system, economic courts with remote litigation system, and real estate licensing system. The Minister also noted that more than 90% of the data traffic between East and West passes through Egyptian lands and waters. Egypt's Ministry of Communications and Information Technology is set to expand the international infrastructure outside Egypt by increasing the number of submarine cables, and expanding and developing the international infrastructure inside Egypt. To date Egypt has expanded the local network that transmits data from the Mediterranean Sea to the Red Sea was doubled to increase from 2,700 km to more than 5,000 km.
(July 27, 2022) www.itp.net

Jordan

The Telecommunications Regulatory Commission (TRC) received 4,103 complaints during the first six months of 2022, according to the Petra. 3,752 complaints were addressed and solved, constituting 92% of the total grievances number, compared to last year and for the same period, which amounted to 3,826, the TRC added. Complaints included 3,215 relating to Internet services, 770 on mobile phone services, 83 for landline subscriptions, 32 for post services, and 3 for "qualitative approvals," the TRC noted. Work is underway to address complaints, as some solutions require technical teams' visits to field sites to conduct the necessary technical examinations for coverage complaints and complete coordination procedures with the companies concerned in this regard, TRC said. TRC Chairman, Bassam Sarhan, stressed the importance of the commission's role in protecting beneficiaries' interests in regard to telecom, information technology, and postal services and its keenness to ensure that operating companies provide "high" level services at affordable prices. TRC is constantly implementing and launching various awareness campaigns that address serves beneficiaries' interests on various media outlets and the commission's social media platforms. In addition, he said that the TRC outlines necessary awareness plans in accordance with developments in the telecom sector, which is characterized by dynamic and rapid changes.

(July 22, 2022) https://www.jordannews.jo

Kuwait

The Communication and Information Technology Regulatory Authority (CITRA) has granted permission to HUAWEI CLOUD to offer cloud services in Kuwait as the GCC country pursues a cloud-first policy. With the new development, Huawei will deliver innovative cloud services to support Kuwait's 2035 vision, which seeks to create a diversified, sustainable economy. The announcement represents a key milestone in HUAWEI CLOUD offerings committed to support Kuwait digital transformation journey, and demonstrates HUAWEI CLOUD's growing profile in Kuwait and the region as part of its global presence. HUAWEI CLOUD has emerged as an essential platform for internet companies and organizations to go digital. Now as the fastest-growing cloud services provider in the world, HUAWEI CLOUD has attracted 2.6 million developers, 28,000 consulting partners, 9,000 technical partners, and released 6,100 Marketplace products five years since launch. In the Middle East, HUAWEI CLOUD offers more than 220 cloud services, 210 solutions, 19 data centers, over 200 local partners, and a growing list of more than 80 marketplace offerings. Salim Muthib Al-Ozainah, Chairman and CEO of CITRA said, "Digitization is integral to the realization of our national goals as part of Vision 2035 to help develop a sustainable and diversified economy. The launch of HUAWEI CLOUD services will help Kuwait's public and private organizations go digital while attracting new foreign investments into the country. We will continue to support technology firms' entry into Kuwait that can add new value to our economy with innovative ideas and solutions." Rico Lin, CEO of Huawei Kuwait, said, "The demand for digital services among Kuwait's enterprises continues to rise. HUAWEI CLOUD services in Kuwait will ensure these enterprises will have access to world-leading cloud services to help them drive their business and services further and keep innovating as per customers' needs and ambitions. Further, our fast-expanding cloud marketplace ensures that we can support our partners' future growth in the digital era." HUAWEI CLOUD is building the Cloud Foundation for an Intelligent World with Everything as a Service. HUAWEI CLOUD approach is all digital, all cloud, AI-driven, and providing everything as a service. Through Everything As Service offerings, Huawei is translating the company's 30 plus years of ICT know-how into a wide variety of cloud services, including Infrastructure as a Service, Technology as a Service, and Expertise as a Service. These services aim to make the computing power required for AI as easily accessible as water and electricity. To this end, Huawei will continue to innovate in foundational technologies, platforms, and talent. We are also working to make AI more affordable, make it as accessible and available as possible, and help cultivate a new, thriving AI ecosystem. Huawei has recently announced plans to host two cloud regions in the Middle East, a boost for local businesses and governments' ability to access more robust and secure cloud services from Huawei.

(July 28, 2022) samenacouncil.org

Morocco

The National Agency of Telecommunications Regulation (Agence Nationale de Reglementation de Telecom, ANRT) has fined Maroc Telecom Group (IAM) MAD2.45 billion (USD238 million) by for failing to comply with the agency's fair competition rules. ANRT said the fine is the culmination of an accumulative penalty that it imposed on IAM back in January 2020; ANRT set a fine of MAD4.1 million for every day that IAM failed to comply with the agency's fair competition instructions. Maroc Telecom Group has 30 days to appeal the USD238 million cumulative fine in court. In January 2020 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, following an in-depth examination of the various elements of the investigation report, which commenced in May 2017. 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, entirely paid to the Treasury.

(July 29, 2022) commsupdate.com

Nepal

Nepal Telecom's 5G trial program seems to be on an obstacle course, hitting one hurdle after another. The state-owned telecom giant says the 5G testing will be delayed by another few months after having held up trials of the new mobile network technology for a year. "The testing plan has been delayed as the equipment needed to conduct the 5G trials arrived late," said Shobhan Adhikari, spokesperson for Nepal Telecom. "It took us time to issue the purchase order." Nepal Telecom will conduct the trials in one location each in the seven provinces. Initially, the government company had planned to begin the trials in mid-July 2021, aiming to become the first in South Asia to roll out the 5G network, but changes in government slowed it down. The telecom regulator has allocated 2600 MHz frequency band to Nepal Telecom for the testing. In September 2021, Ncell wrote to the Nepal Telecommunications Authority seeking approval for 5G network trials. The regulator replied that the Radio Frequency Policy Determination Committee would review Ncell's 5G plan. There has been no response so far, sources privy to the matter said. "We have been requesting the regulator to issue trial 5G spectrum to Ncell since early last year so that we could test the technology for a stipulated period before the commercial launch as per the regulatory framework," Ncell told the Post in an email. According to the latest management and information system report of the Nepal Telecommunications Authority, there are 38 million broadband subscribers in Nepal. The country has 10 million 3G subscribers and 17.99 million 4G subscribers. Total broadband penetration has reached 130.20 percent, out of which 98.55 are mobile broadband users and 31.28 percent fixed broadband users. As of mid-May, Nepal Telecom had 8.89 million 3G users and 10 million 4G users while Ncell had 2 million 3G users and 6.61 million 4G users. (July 24, 2022) kathmandupost.com

Oman

Eng. Salim al Aufi, Chairman of the Board of Directors of the Telecommunications Regulatory Authority (TRA) has issued a regulation to monitor the quality of telecommunication services in the country. According to the regulation, the licensee must announce the data speed for each fixed broadband service package (wired and wireless) and must publish details of the quality of communications services, packages, and offers. As per the decision, the licensee shall submit reports on the established performance indicators of the quality of telecommunications services within a period not exceeding 30 days from the end of the monitoring period and must publish those reports in the form and within the period specified by TRA. The licensee must declare the data speed for each of the bandwidth packages - fixed broadband (wired and wireless), and it is also committed to providing high-speed data for broadband services. The actual speed of the fixed wired broadband service provided to the beneficiary shall not be less than 90% of the maximum data speed limit announced by the licensee according to the beneficiary's subscribed package. The actual speed of a fixed wireless broadband service shall not be less than 70% of the highest data speed announced by the licensee according to the subscribed package. The licensee must publish sufficient details about the quality of telecommunications services and packages and the offers on its website, to ensure that the beneficiary is aware of the quality of the telecommunications services it provides. The licensee must design wireless communications networks to provide communications signal strength) that will ensure the ensures the best telecommunication services to the beneficiaries, The licensee must design wireless

communication networks taking into account the continuous increase in the use of mobile broadband services.
Role of the authority: The authority will review the reports submitted by the licensee, audit its records and systems, and the authority may seek the assistance of a consultant or auditor to review the details submitted by the licensee at t the expense of the licensee. The authority measures the quality of telecommunications services as follows: Conducting field surveys directly or through a third party to measure service quality provided, whether for mobile or fixed telecommunications services, and preparing comparative reports for the quality of the service of each licensee. It will use data measured from a third party, through the collection of random samples from users to obtain information related to the quality of telecommunications services, which will reflect the experiences of the beneficiaries of the quality of the service provided by the various licensees. (August1, 2022) www.omanobserver.om

The Telecommunications Regulatory Authority (TRA) has warned there are several risks when creating wireless networks for the purpose of sharing Internet services with neighbors. In a statement issued on Tuesday, the TRA said that such activities can cause technical glitches. "There is a possibility of interference in wireless networks and the impact on the speed and quality of service for the rest of the subscribers in the same area." It warned that creating Internet services without a license can make the user liable to legal liability, apart from the fact that all data is vulnerable to hacking and misuse of the service for fraud and hacking. TRA clarified that, however, the safety of using the devices has not been confirmed. Meanwhile, many Internet subscribers reacted to the warning by saying that one of the main reasons is the high price involved with the subscription of services." "People resort to sharing services to reduce costs as the Internet is an essential utility and service and an absolute necessity at all times."
(July 20, 2022) omanobserver.om

The Telecommunications Regulatory Authority (TRA), has issued Decision No. 107 setting out regulations for the management of emergency cases. The guide deals with the obligations of Segment 1 and Segment 2 personnel tasked with handling contingencies. It helps achieve quick response and maintain the sustainability of basic communications in emergency conditions. It also provides for integration among the departments concerned to realize the unification of efforts and the restoration of services in the shortest possible time. The guide also deals with the supply of necessary equipment and human resources at emergency operation centers. During emergency cases, the Telecommunications Sector joins hands with the National Committee for Management of Emergencies—a standard measure to tackle any probable negative impacts. (July 13, 2022) timesofoman.com

Pakistan

Pakistan Telecommunication Authority organized Consumer Conference 2022 with the theme "Consumers First" on Friday. Head of the Prime Minister's Strategic Reforms, Mr. Salman Sufi was the chief guest on this occasion. CEO USF Pakistan, representatives of IT & telecom industry, consumer rights groups and the public also attended the event. Joining the event virtually, Head of PM Strategic Reforms said this conference provides an excellent opportunity to directly obtain consumer feedback especially on the issues the public is facing. He also mentioned the recent measures undertaken by PTA such as opt out/ unsubscribing mechanism for unsolicited/telemarketing messages. He also mentioned that the Government is working with stakeholders in the light of Prime Minister's vision of digital economy to ensure convenience of the people. Citizen data privacy law will also be enacted in the near future which will ensure unprecedented data protection of citizens and businesses. Addressing the conference, Chairman PTA, Maj. General Amir Azeem Bajwa (R) said that PTA is cognizant of telecom consumers' needs and is taking every step to facilitate them in resolving their issues. He said that organizing this consumer conference is yet another serious effort by PTA to take consumer feedback directly from the public. Moreover, PTA is working on improving consumer satisfaction level against the resolution of their problems. Speaking at the occasion, Member (Compliance & Enforcement) PTA, Dr. Khawar Sidique Khokhar highlighted that PTA, being a progressive regulator with reconciliatory approach, has improved consumer experience and facilitated industry progress. (August 29, 2022) https://pakobserver.net

The number of 3G and 4G users in Pakistan increased by 1.86 million from 113.89 million by end-May 2022 to 115.75 million by the end of June 2022, says the Pakistan Telecommunication Authority (PTA). The number of cellular subscribers in Pakistan increased by 1.32 million to 194.58 million by end-June 2022 compared to 193.29 million by end-May 2022. The teledensity for cellular mobile increased from 87.8 percent by end May to 88.34 percent by end June. The total teledensity increased from 88.94 percent by end May to 89.53 percent by end June 2022. The Monthly Next Generation Mobile Service (NGMS) penetration increased from 51.73 percent by end-May 2022 to 52.55 percent in June 2022. Jazz's total count for 3G users declined from 6.068 million by end May to 5.947 million by end June, registering a decrease of 0.121 million. Jazz 4G user numbers jumped from 37.168 million by end May to 38.039 million by end June. Zong 3G subscribers decreased from 3.272 million by end May to 3.197 million by end June, while the number of 4G users increased from 28.317 million by end May to 28.906 million by end June. Telenor 3G subscribers decreased from 3.613 million by end May to 3.542 million by end June, while the number of 4G users of Telenor increased from 21.496 million by end May to 21.831 million by end June. Ufone 3G users stood at 3.509 million by end June compared to 3.576 million by end May. The number of 4G users of Ufone increased from 9.052 million by end May to 9.419 million by end June, registering 0.367 million increase during the period under review. The PTA received 20,191 complaints from telecom consumers against different telecom operators, including

(cellular operators, PTCL, LDIs, WLL operators, and ISPs) as of June 2022. The PTA said it was able to get 19,847 complaints resolved i.e. 98 percent. Cellular mobile subscribers constitute a major part of the overall telecom subscriber base. Therefore, the maximum number of complaints belongs to this segment. The total number of complaints against CMOs by June stood at 19,496 where 19,215 were addressed i.e. 98 percent. According to the PTA data, 7,191 complaints were received against Jazz, 6,135 against Telenor, 4,427 against Zong and 1,735 complaints were received against Ufone. The PTA also received 176 complaints against basic telephony, where 160 were addressed during June 2022. Furthermore, 499 complaints were received against ISPs, where 453 were addressed. (July 21, 2022) brecorder.com

Chairman PTA, Maj. Gen. Amir Azeem Bajwa (R) spoke virtually at the Regulators' Roundtable of the 22nd APT Policy and Regulatory Forum 2022 organized by Asia-Pacific Telecommunity (APT). Chairman PTA briefed the audience about PTA's regulatory achievements and cross-sectorial collaborations with other government bodies and private entities. The Chairman also said that PTA is striving to achieve the leading status under the G5 benchmark through enhanced cooperation with the other stake-holders and regulators. He also mentioned that Pakistan is on the path towards achieving the vision of 'Digital Pakistan' through prudent policy and regulatory reforms. It is pertinent to highlight that International Telecommunication Union (ITU) ranks PTA at the "Advanced" level under its fifth-generation regulation (G5). Pakistan is also placed among the top five regulators in the Asia-Pacific region. (July 19, 2022) pta.gov.pk

Pakistan Telecommunication Authority (PTA) has formulated the "Cyber Security Framework" through extensive consultation and deliberation with Telecom Industry and leading cyber security experts. This framework is based on the Critical Telecom Data and Infrastructure Security Regulation (CTDISR) by PTA and defines the obligation of auditors and PTA's licensees, said a news release issued here. It provides guidance to the auditors for performing gap assessment in the light of PTA's Cyber Security Regulations including interpretation and expectations against each security control where necessary. As part of the framework, a maturity model has also been devised, whereby the controls have been classified on the basis of their criticality. It is pertinent to highlight that International Telecommunication Union (ITU) has given significance to the Cyber Security Framework of each member state while calculating the Global Cyber Security Index (GCI). The framework is a significant step towards improving the security landscape of the telecom industry and will enable organizations to better manage and reduce cybersecurity risk. (July 7, 2022) urdupoint.com

Qatar

The communications regulator claimed the country's mobile operators are capable of meeting high data and quality of service demands expected during this year's World Cup, following an extensive audit of the nation's networks. In a statement, Qatar's Communications Regulatory Authority (CRA) said an audit conducted from August to December 2021 indicated Ooredoo Qatar and Vodafone Qatar could maintain a high standard of accessibility and retainability of services offered to consumers, while having the capacity to provide higher download speeds to a "wider environment". The audit covered mobile voice calls, SMS and 5G data services, with testing conducted during peak hours of working days on more than 58,000 samples from each provider's network collected across different areas of Qatar. It used undefined QoS systems and the latest devices and smartphones to conduct the study. Clearly, the audit was done with the major-football tournament in mind, which is due to kick-off on 20 November. In preparation for an increase in mobile network usage, the regulator said it has assigned operators with additional 5G spectrum, including mmWave, aimed to "revolutionize the mobile broadband performance in Qatar". CRA added it did not conduct an audit to compare or identify which operator had the best network. In terms of notable statistics, it found on average networks in the country had a maximum downlink throughput of 700Mb/s and 99.9 per cent successful call completion. According to GSMA Intelligence, the country has 5.3 million cellular connections, with the vast majority (76 per cent) using 4G technology.

(August 25, 2022) www.mobileworldlive.com

The Communications Regulatory Authority (CRA) issued the Cloud Computing Handbook for Small and Medium Enterprises (SMEs), which is part of its regulatory instruments that were developed to create a safe cloud environment and to facilitate large-scale adoption of cloud computing by SMEs based on their requirements and objectives and in line with the digital development of Qatar. Cloud computing offers many opportunities for Small and Medium Enterprises, as it enables them to automate their procedures and provide high-quality services at lower costs. Cloud computing saves large amounts of capital expenditure (CAPEX) and operating expenses (OPEX) compared to the costs of traditional solutions. Thus, it contributes to enhancing their growth by improving productivity, flexibility, security, and overall operational efficiency. The Handbook provides a simplified explanation to Small and Medium Enterprises about what cloud computing is, the meaning of typical cloud contractual provisions, categories of cloud services, and key points that Small and Medium Enterprises should pay close attention to before subscribing to such services. The Handbook also includes an annex on data classification guidelines that will help SMEs classify their data in their transition to the cloud. The State of Qatar has placed the development of cloud computing at the heart of its digital transformation strategy. Cloud computing contributes to establishing Qatar as a leading regional digital hub, a home to international digital players, and an attractive destination for domestic and foreign investments in innovative digital services. CRA recently issued the Cloud Policy Framework, which provides trusted access principles for all stakeholders in the

cloud value chain and defines a comprehensive set of policy and regulatory recommendations to stakeholders from the public and private sectors that are aligned with international laws and best practices. (July 6, 2022) cra.gov.qa

The Communications Regulatory Authority (CRA) published the amended versions of the "Class License for the Resale of Retail Telecommunications Services" and the "Class License to Own and/or Operate a Private Telecommunications Network". The two Class Licenses were originally issued in 2011 and were amended in 2013. The current amendments aim at updating and enhancing the Class Licenses taking into account the establishment of CRA in 2014 and amendments to the Telecommunications Law in 2017. According to the Telecommunications Law, a license is required to resell retail telecommunications services or own and/or operate a private telecommunications network. The Licensee must comply with the terms and conditions of the appropriate License and with the Telecommunications Law and applicable regulatory framework. The amended licenses supersede all previous versions and are effective from the date of their issuance. The resale of retail telecommunications services is an established practice in some fields, for example reselling telecommunications services to hotel guests. All resale of telecommunications services must be according to the related amended Class License. Private telecommunications networks enable corporations and entities in private and government sectors to ensure reliable, flexible, and secure communications on site and between sites. Owners and/or operators of private telecommunications networks must comply with the provisions of the related amended Class License. The amended Class Licenses provide clarity to service providers, consumers, and all other stakeholders on the scope and terms and conditions of the licenses. In particular, the Class License for the Resale of Retail Telecommunications Services clarifies the list of parties who are eligible to resell telecommunications services in Qatar, hence limiting the scope for illegal resale activities. Any person who resells retail Telecommunications Services outside of the scope of the Class License will be infringing the Telecommunications Law and will be exposed to the criminal sanctions in accordance with the provisions of the Telecommunications Law. (July 5, 2022) cra.gov.qa

Saudi Arabia

The Communications and Information Technology Commission (CITC), in collaboration with IEEE Future Networks Initiative, launched a global competition on Non-Terrestrial Networks (NTN), which aims at supporting research and innovation in the field of future communications networks. CITC and IEEE call upon students and junior scientists to submit scientific and research papers in the field of NTN by 1st of September 2022. The scientific papers should provide innovative ideas and aspects of the NTN for Beyond fifth-generation (B5G) and 6G Networks. The submitted papers will be evaluated, and accordingly Ten invited/ selected applicants will be hosted to present their ideas during the "Connecting the World from the Skies" Forum which will be held in Riyadh, Saudi Arabia on 8-10 November 2022. Furthermore, grand prizes will be awarded to the top three papers.
(August 4, 2022) www.citc.gov.sa

The Communications and Information Technology Commission (CITC) has called on the public to provide their feedback on the "Competition Regulations for Digital Content Platforms". This is part of the Commission's efforts to regulate competition in the Kingdom's digital content market, and to create a clear regulatory framework promoting fair competition among digital content platforms. The document is based on an analysis of digital platform markets to identify the problems and risks related to competition. In addition to development of new tools, policies, and recommendations to prevent anti-competitive behavior, this document also incorporates the long-term economic and investment benefits of promoting fair competition for both consumers and the wider sector. The document aims to set the framework for fair competition regulations among digital content platforms in line with international best practices. It is also ensured that the policies proposed in the document are in accordance with all relevant regulations in the Kingdom. (August 1, 2022) www.citc.gov.sa

The Communications and Information Technology Commission (CITC), in collaboration with IEEE Future Networks Initiative, launched a global competition on Non-Terrestrial Networks (NTN), which aims at supporting research and innovation in the field of future communications networks. CITC and IEEE call upon students and junior scientists to submit scientific and research papers in the field of NTN by 1st of September 2022. The scientific papers should provide innovative ideas and aspects of the NTN for Beyond fifth-generation (B5G) and 6G Networks. The submitted papers will be evaluated, and accordingly Ten invited/ selected applicants will be hosted to present their ideas during the "Connecting the World from the Skies" Forum which will be held in Riyadh, Saudi Arabia on 8-10 November 2022. Furthermore, grand prizes will be awarded to the top three papers. (July 30, 2022) citc.gov.sa

The Communications and Information Technology Commission (CITC) in collaboration with International Telecommunication Union (ITU) and Saudi Space Commission (SSC) are hosting the 3-day international forum on "Connecting the World from the Skies". The forum aims at exploring the rapid evolution of Non-Terrestrial Networks (NTN), which will take place in Riyadh on 8-10 November 2022. The forum brings together global experts in radio-communication and space industry innovators, researchers, ICT and technology stakeholders, as well as spectrum policymakers from national regulators and other relevant international bodies. In addition, the forum will address the contribution of NTN, which will be deployed in atmospheric layers and outer space, to provide telecommunication services in the air, sea and land.

The deployment of these networks will provide cutting-edge technologies of IoT and broadband communications, which will contribute to enhance digital transformation around the world. The forum will include a global research competition on NTN and will discuss the most prominent services provided via Non-Terrestrial Networks, and their regulatory and scientific aspects. In addition, it highlights CITC recent technology trials in the field of NTN and its role in the adoption of 6G technology and enabling an environmentally friendly and sustainable telecommunications infrastructure. (July 28, 2022) citc.gov.sa

The Communications & Information Technology Commission (CITC), has confirmed that the download speed of mobile internet reached 271.66 Mbit/s. which is 15% higher than last year, while upload speeds of mobile internet reached 35.2 Mbit/s, 15% higher than last year in Makkah on July 8. With extensive preparations from CITC, pilgrims have consumed 3.16K TB via telecom networks in Makkah City, this is the equivalent of watching 1.29M hours of HD video clips, the Commission reported. Statistics released by CITC also showed that the average daily consumption per user was 805.92 MB/user, exceeding 3 times the world's average consumption of around 200 MB/user. And the most used apps are YouTube, TikTok, Snapchat, Facebook, and Instagram, the Commission reported. On top of the 12.96 million local calls, 1.41 million international calls were made, with a total success rate exceeding 98%. (July 9, 2022) citc.gov.sa

Sri Lanka

Sri Lanka's 5G rollouts are likely to lag behind the regional peers, due to the obstacles formed by the on-going economic crisis, uncertain political environment and recent hike in the Telecommunications Levy imposed on the operators. Although the 5G rollouts were earlier expected to take place in the country this year and next year, with the leading telco operators moving for commercial deployment, the Telecommunications Regulatory Commission of Sri Lanka (TRCSL) is yet to hold to a spectrum auction, which would include the 5G-capable spectrum. "Mobitel plans to invest US $ 100 million in its 5G networks and estimates US $ 15 million on 5G spectrum licenses. Meanwhile, Dialog claims to be the first operator in South Asia to trial a 5G standalone network. However, Sri Lanka's major economic crisis, uncertain political situation and an increase in the Telecommunications Levy from 11.25 percent to 15 percent for operators are likely to hamper the future 5G rollouts in Sri Lanka," leading mobile analytics firm OpenSignal said in its latest Mobile Network Experience Report. Meanwhile, the other regional countries, including India, are moving ahead to rollout 5G services within the next few months. Although the previous government in its 2021 budget announced that the spectrum for 5G would be awarded within the following year, the Global System for Mobile Communications Association (GSMA) pointed out that the plans of spectrum awards were mentioned in focusing on taxation and revenue generation. Meanwhile, the TRCSL did launch a consultation on its spectrum licensing framework in mid-2021 and submissions from industry members were made with taking steps to clear the spectrum along with discussions to release the 700 MHz spectrum to operators. However, the progress of these initiatives is yet to be publicized. It is widely expected that the 3500 MHz band spectrum is to be awarded for 5G deployment. However, the GSMA noted that the TRCSL is yet to announce an award mechanism, lot sizes or fees, with the consultations of telecom operators. In addition, OpenSignal pointed out that more mobile spectrum remains crucial for improving mobile network quality in Sri Lanka, as experienced during the pandemic-related lockdown period. Theretofore, it said the TRCSL should ensure that the mobile operators are given sufficient spectrum to mobile services in order to deliver a strong 4G and 5G experience and meet the growing appetite for mobile internet usage in the country. (August 4, 2022) www.dailymirror.lk

Turkey

5G Launch was held at Istanbul Airport. Speaking at the opening of the program, Minister of Transport and Infrastructure Adil Karaismailoğlu said that Turkey's 5G journey has begun. 3 GSM operators serving in Turkey offered 5G speed to the service of passengers for the first time with the introductory ceremony attended by Minister of Transport and Infrastructure Adil Karaismailoğlu. Providing information about the works related to 5G, Minister İsmailoğlu said, "We are at Istanbul Airport. It has been a project that will give 25 billion Euros of rent to the state by investing 10 million liras in an area of 75 million square meters. There is no award that Istanbul Airport did not receive, no record that it did not break," he said. Noting that the necessary preparations for the 5G signal at the airport have been completed, Karaismailoğul said, "Today, we will see the stage Turkey has reached in 5G at the stands set up by our domestic technology companies. With the low level of 5G supported devices in our country and the increase in devices supporting 5G, citizens' benefit from 5G will increase. Significant strides have been made so far. We will take this road with bigger steps. We will increase our investments to accelerate the transition to 5G. We have provided and will continue to provide the necessary support with the Ministry and related institutions. Operators also need to demonstrate stability. In the first investment period of 4.5G, we see that the domestic rate of 1 percent has exceeded 33 percent. Nationalization of critical

components for 5G and beyond technologies is also our priority. After that, we will take the opinions of our sector stakeholders and realize the most appropriate solutions." Referring to the point Turkey has reached in the field of technology, Karaismailoğlu said, "We increased the fiber to 478,000 kilometers. We increased the number of fixed broad lines from 20 thousand to 18 million. In the first quarter of 2022, we increased the amount of internet usage by 25 percent in fixed and 35 percent in mobile. We put Türksat 5B into service. We also provide broadband internet service. We contributed more than 520 billion dollars to the national income with our investments. In this process, we planned communication investments of 68 billion dollars. In the short term, we will increase the mobile broadband subscriber density to 100 percent and deliver internet service to every home." Stating that 6G works will be accelerated in the coming period, İsmailoğlu said, "We will increase our fiber network length to 1 million kilometers and become one of the 10 satellite operators globally. We will continue to do whatever is necessary, taking into account the interests of the country. We also plan the communication infrastructure with the mind of the state and implement it through public-private partnerships. After the 5G tender we will hold in 2023, we will use the next time in the most efficient way for the development of products. By 2023, we will continue on our way by making serious breakthroughs in 5G technology in order to popularize this technology in our country. We will have the opportunity to experience 5G features by GSM operators," he said. (July 29, 2022) www.btk.gov.tr

United Arab Emirates

The International Telecommunication Union (ITU) is pleased to announce that the next World Radiocommunication Conference (WRC-23), will take place at the Dubai World Trade Centre in Dubai, United Arab Emirates (UAE) between 20 November and 15 December 2023. Held every four years for a period of four weeks, the World Radiocommunication Conference (WRC) is mandated to update the Radio Regulations, the sole international treaty governing the use of the radio frequency spectrum and the geostationary-satellite and non-geostationary satellite orbits. WRC-23 will bring national government authorities and telecommunication regulatory agencies together with representatives of key radiocommunications users and providers, for crucial policy and technical regulatory discussions at the global level. "I am very pleased that the WRC-23 is set to happen in [Dubai] in the United Arab Emirates," said ITU Secretary-General Houlin Zhao. "The world has come through the COVID-19 pandemic relying on digital technologies and services like never before. WRC 23 provides our quadrennial opportunity to update the Radio Regulations, ensure the sustainable evolution of information and communication technologies (ICTs) for all, and establish a coordinated roadmap for expanding radiocommunication services." International cooperation maintained through the four-year conference cycle supports the availability of, and future investment in, radiocommunication services that are free of harmful interference. Engineer Majed Sultan Al Mesmar Director General of the UAE Telecommunications and Digital Government Regulatory Authority (TDRA) said: "The United Arab Emirates is delighted to extend a warm welcome to ITU Members to the city of [Dubai] for WRC-23. As a major hub and global leader in the digital economy, the UAE is keen on supporting ITU in the vital task of allocating global resources such as radio-frequency spectrum and satellite orbit positions to create a seamless, reliable, and innovative global communication system." (July 20, 2022) tdra.gov.ae

The Telecommunications and Digital Government Regulatory Authority (TDRA) announced that it has been accredited by VMware, a leading company in cloud computing and virtualization technology, to become the first government entity to provide sovereign cloud services by VMware in the region. Sovereign Clouds are architected and built to deliver security and data access that meets strict requirements of data protection law and the regulatory sectors regarding data privacy, access and control. This accreditation is the result of a journey of hard work during which TDRA was able to meet a number of standards set by VMware, such as data integration, security, independence, analytics and innovation. This accreditation is in line with TDRA's tireless efforts in the field of digital transformation and government enablement to use a highly efficient government cloud environment. TDRA's efforts in this context comes within its mission as an enabler of digital transformation in addition to its role as a regulator of the telecommunications sector in the UAE. TDRA provides a strong digital network, which is the Federal Digital Network (FedNet), as well as a range of cloud services, and a virtual services marketplace that supports government entities in developing their digital solutions. Commenting on this achievement, H.E. Eng. Majed Al Mesmar, TDRA Director General, said: "Data has become the oil of the era and a priceless wealth. From this perspective, TDRA has been keen to develop and localize cloud services according to the best international standards. Through this step, we seek to preserve the data of our government entities, and achieve the security and independence of data, its transfer, analytics and innovation so that this data remains safe, secure and protected." H.E. Al Mesmar added: "Through the accreditation of FedNet as a sovereign cloud, TDRA provides a wide range of services, in order to enhance digital transformation in government and private entities of different sizes and sectors in which they operate. Moreover, sovereign clouds will give government entities greater ability to control and preserve their data and the data of their customers, and they will be able to meet the highest standards of information security." Moreover, H.E. Eng. Mohammad Al Zarooni, TDRA Deputy Director General for Information and Digital Government Sector, said:" The accreditation of TDRA as a sovereign cloud service provider in the UAE will have a major role in supporting the digital transformation efforts in the country, and will drive the adoption of cloud computing by government entities. TDRA manages cloud infrastructure services, application hosting and

technical support provision to federal entities within the country, and ensures its protection and security." H.E. Al Zarooni continued: "This would support TDRA's efforts in enhancing the capabilities of digital enablers, which is a package of tools available to federal government entities to support their digital transformation efforts." TDRA indicated that the adoption of the sovereign cloud will contribute to the development of cloud services at the government level, which would improve the quality of access to government services around the clock through an agile hosting environment with increased operational efficiency and financial savings through cost reduction. This step will enhance the use of digital services connected to FedNet, which reaches more than 250 digital services. The Cloud Services Section in TDRA is responsible for managing the cloud infrastructure as a service provided within FedNet, which is an agile cloud infrastructure capable of meeting the increasing demand for computing and storage resources and providing them to more than 35 federal entities. This service is monitored by the Cloud Computing Operations Center around the clock. The Cloud Services Section provides a range of services, including infrastructure, disaster recovery environment, artificial intelligence environment, machine learning applications and others.

(July 5, 2022) tdra.gov.ae

REGULATORY ACTIVITIES BEYOND THE SAMENA REGION

Argentina

The National Communications Agency (Ente Nacional de Comunicaciones, ENACOM) has announced that it has generated USD27.7 million from its sale of unused 4G frequencies in the 2600MHz band. The announcement concludes a process that began in May this year, when the watchdog outlined plans to reorganize existing 2600MHz spectrum holdings on a contiguous basis. ENACOM explained: 'Based on this assignment and reordering of the spectrum, providers Claro, Movistar and Personal will be given the opportunity to equalize their holdings both in total amounts and in amounts assigned in the 2600MHz band. This will increase efficiency in the use of the band, given the new contiguous arrangement of the assigned ranges.' In May 2017 ENACOM initiated a tender process for FDD/TDD spectrum in the 2500MHz-2690MHz frequency range. Two months later it was confirmed that Claro and Movistar had each acquired 2×15MHz FDD blocks, while Personal bid on a 2×20MHz FDD block alongside an unpaired 20MHz TDD block; no prices were disclosed. (August 31, 2022) www.commsupdate.com

Australia

A court-enforceable undertaking from Telstra has been accepted by the Australian Competition and Consumer Commission (ACCC), with this aimed at addressing competition concerns related to the former's registration of radiocommunications sites in low band spectrum that reportedly interfered with rival Optus' plans to roll out its 5G network nationally. In a press release regarding the matter, the ACCC said that following an 'intensive' investigation it had become concerned that Telstra's registrations of these sites 'had the substantial purpose or likely effect of preventing or hindering Optus from deployment of its 5G network and from engaging in competitive conduct in the retail mobile market'. According to the regulator, Telstra's undertaking now requires it to deregister all remaining radio sites it registered with the Australian Communications and Multimedia Authority (ACMA) in the 900MHz spectrum band in January 2022 that would have prevented Optus from early access to the spectrum. With Telstra holding a license for parts of the 900MHz band until 30 June 2024, the ACCC noted that prior to 31 January 2022 the operator 'was making little use of the spectrum and had not registered a new site since 2016'. However, with Optus having won all the 900MHz spectrum on offer in the ACMA's December 2021 auction, the ACCC said that Telstra became aware that month that the ACMA would consider early access applications for these frequencies. Subsequently, on 31 January 2022 Telstra registered 315 sites in the 900MHz band, predominantly located in major cities or inner regional areas, under its existing license. Of the 315 sites registered by Telstra on that date, Telstra later deregistered 153, with 162 remaining registered, while the ACCC claims that since January 2022 Telstra has only used 'a limited number' of these sites. Commenting on the matter, ACCC Commissioner Liza Carver said: 'We were concerned that Telstra's registration of 315 radiocommunications sites in the 900MHz spectrum band had the substantial purpose or likely effect of lessening competition by Optus, as Telstra knew of the importance of this spectrum band to Optus' 5G rollout plan.' The executive added: 'Telstra's undertaking will ensure Optus is not hindered from expanding its 5G rollout, giving more Australians access to a choice of 5G services in regional and metropolitan Australia … Telstra's undertaking promptly addresses the ACCC's competition concerns and stops the likely harm to competition and consumers quickly. It is an efficient and effective way to achieve a positive market outcome.' (August 3, 2022) www.commsupdate.com

A draft determination has been issued by the Australian Competition and Consumer Commission (ACCC) in which it proposes authorizing Telstra and NBN Co to amend agreements that they entered into from 2011 and 2014 which facilitated the rollout of the National Broadband Network (NBN). In a press release the ACCC noted that the existing agreements, authorized under statute, provide the necessary legal certainty that certain conduct would not contravene Australian competition laws. Now, however, with Telstra proposing to undertake a restructure of its organization it is seeking to incorporate its related entities into the existing agreements with the NBN through an amendment. Under the proposed authorization, entities across the restructured Telstra group will be able to continue to give effect to their existing rights and obligations owed to NBN Co. Commenting, ACCC deputy chair Mick Keogh said: 'In our assessment we are limited to considering the potential public benefits and detriments that flow from the restructure and not from any existing agreements … The Telstra restructure is likely to result in some public benefits including increasing value to the shares widely held by Australian retail investors, largely by improving commercial opportunities.' Submissions from interested parties in relation to the draft determination are now being sought by the ACCC, while it said it expects to make a final decision on the matter in August/September 2022. (July 15, 2022) commsupdate.com

Belgium

The Belgian Institute for Postal Services and Telecommunications (BIPT) has announced the conclusion of the final phase of its multi-band spectrum auction. Following completion of the tender for new 5G spectrum (700MHz and 3600MHz) and existing 2G and 3G frequencies (900MHz, 1800MHz and 2100MHz) on 20 June 2022, raising EUR1.2 billion (USD1.23 billion), the second and final phase of the auction to allocate 20-year user rights to another 90MHz of frequencies in the 1400MHz band yielded EUR216.54 million, bringing the total amount raised to almost EUR1.419 billion. Proximus successfully bid EUR108.89 million for 45MHz of 1400MHz spectrum (1472MHz-1517MHz), Orange Belgium paid EUR69.65 million for 30MHz (1427MHz-1457MHz), and Telenet obtained 15MHz (1457MHz-1472MHz) for EUR38 million.

(July 21, 2022) commsupdate.com

Telecoms regulator the Belgian Institute for Postal Services and Telecommunications (BIPT) has proposed extending the 2G and 3G spectrum licenses held by Proximus, Telenet and Orange Belgium for another six months from 15 September 2022, to give it time to finalize the new permits auctioned last month. Originally due to expire on 15 March 2021, the 900MHz, 1800MHz and 2100MHz permits have already been prolonged by three six-month periods to ensure continuity of services. The operators will once again be liable for a one-off fee of EUR51,644 (USD56,516) per MHz per month for the 900MHz band (including user rights for the 1800MHz frequencies) and EUR20,833 per MHz per month for the 2100MHz band. This means Proximus will pay around EUR11.4 million, Orange EUR10.9 million and Telenet EUR8.4 million. (July 14, 2022) commsupdate.com

Bolivia

The Authority for the Regulation and Oversight of Telecommunications and Transport (Autoridad de Regulacion y Fiscalizacion de Telecomunicaciones y Transportes, ATT) has announced that it has blocked the recent sale of NuevaTel PCS (Viva) to Balesia Technologies, citing a lack of transparency. The intervention follows a recent announcement from US-based Trilogy International Partners (TIP), which confirmed that the deal closed in the second quarter of 2022. In a statement dated 22 August, Nestor Rios, Executive Director of the ATT, commented: 'The information provided is not transparent. It is not enough for this authority to make an affirmative statement to authorize the transfer of Viva. The rejection of the transfer request from the Viva to Balesia Technologies has been notified. This decision will also be subject to control and supervision. We will ensure that this measure is complied with and that the sector is regulated.' The deal – which was first announced in March 2022 – involved the transfer of Trilogy's 71.5% indirect equity interest in its Bolivian subsidiary to Balesia Technologies, for a nominal purchase price. Peru-based Balesia owns and operates cell towers and fiber infrastructure in Mexico, Guatemala, Nicaragua, Costa Rica, Ecuador, Peru, Bolivia and Argentina.

(August 30, 2022) www.commsupdate.com

Edgar Montano, Bolivia's Minister of Public Works, Services and Housing, and Nestor Rios, the director of the Authority for the Regulation and Oversight of Telecommunications and Transportation (Autoridad de Regulacion y Fiscalizacion de Telecomunicaciones y Transportes, ATT), have launched a tender for the implementation of a new National Integrated Radio Spectrum System (Sistema Integrado Nacional del Espectro Radioelectrico, SINER), as the authorities seek to 'regularize' the frequencies currently in use and pave the way for the introduction of 5G technology. National and international companies interested in bidding for the contract have until 12 September to respond to the tender. The tender is expected to be worth BOB169.7 million (USD24.0 million).

(July 6, 2022) commsupdate.com

Brazil

The National Telecommunications Agency (Agencia Nacional de Telecomunicacoes, Anatel) has confirmed that the country's national mobile operators are now able to launch Standalone (SA) 5G services using the 3.5GHz frequency band in a further three state capitals, namely: Curitiba (Parana), Goiania (Goias) and Salvador (Bahia). As per the regulator's announcement, SA 5G has been permitted since yesterday (16 August). Going forward, band administrator Siga Antenado anticipates that the cities of Florianopolis (Santa Catarina), Palmas (Tocantins), Rio de Janeiro (Rio de Janeiro) and Vitoria (Espirito Santo) should be able to receive 3.5GHz services by 29 August. Brasilia was the first location green-lit for SA 5G, with Vivo, TIM and Claro all switching on services during the week commencing 4 July. Belo Horizonte, Joao Pessoa, Porto Alegre were next in line, with launches from 29 July, with Sao Paulo following on 4 August. (August 17, 2022) www.commsupdate.com

The National Telecommunications Agency (Agencia Nacional de Telecomunicacoes, Anatel) has confirmed that the country's 3.5GHz spectrum holders have been permitted to launch Standalone (SA) 5G services in Sao Paulo. As per the licensing conditions, each of the 3.5GHz licensees – Telefonica Brasil (Vivo), Claro and TIM Brasil – are each obliged to install 154 5G base

stations in Sao Paulo by 29 September, for a total of 462 antennas. However, Anatel notes that it has already received 1,378 antenna requests, suggesting that initial 5G coverage will comfortably surpass the level stipulated. Brasilia was the first location green-lit for SA 5G, with Vivo, TIM and Claro all switching on 5G during the week commencing 4 July. Belo Horizonte, Joao Pessoa, Porto Alegre were next in line to receive 5G, with services going live from 29 July.

(August 3, 2022) www.commsupdate.com

Canada

The telecoms regular has ordered Rogers Communications Inc. to provide a detailed explanation for last week's widespread service outage that affected millions of Canadians and knocked out access to some health-care, law enforcement and banking services. The CRTC said that it has requested that Rogers respond by July 22 to detailed questions it sent the company, including on the 'why' and 'how' the outage occurred and what measures it is putting in place to prevent future outages. Ian Scott, chair of the CRTC, said in a statement that the request was the first step the agency was taking to improve network resiliency. "Events of this magnitude paralyzing portions of our country's economy and jeopardizing the safety of Canadians are simply unacceptable." This request comes a day after federal industry minister François-Philippe Champagne confirmed that the CRTC would investigate the outage and met with Rogers chief executive Tony Staffieri and the head of several other telecom providers. In the meeting, Champagne directed the companies to come up with a crisis plan, including agreements on emergency roaming, a "mutual assistance" framework during outages and a communication protocol to "better inform the public and authorities during telecommunications emergencies." With Canada's big telecom companies now tasked with developing a backup plan to mitigate the impact of future outages and other emergency scenarios, one former telecom executive says that there is the risk of creating a situation where a competitor's network becomes overwhelmed and service is ultimately degraded. Former Telus chief financial officer Robert McFarlane said that while devising a strategy to ensure everyone's phones are able to function on other networks if there's a service outage makes "tremendous sense," the telecom providers will have to be very thoughtful in their approach. An additional challenge would be determining whether or not a provider should favor their own customers over those using that provider as a backup during an emergency situation, he explained. McFarlane also said if Quebecor is successful in acquiring Shaw-owned wireless carrier Freedom Mobile, it would allow the Montreal-based company to increase its national presence and strengthen its business, consequently opening the door for Rogers and Quebecor to potentially become redundancy backups to each other. The deadline for Rogers, Shaw and Quebecor to reach a definitive agreement on the sale of Freedom is July 15. Carleton University professor Dwayne Winseck said consumers could have more power in emergency situations if they had the option of temporarily switching to another network on their own during scenarios like last week's outage. He said Google's mobile virtual network operator (MVNO) service in the U.S., Google Fi, that allows people to switch carriers using a web-based application, could be worth possibly replicating here in Canada. "For emergency situations, the government and CRTC could mandate a daily cap roaming fee for subscribers who jumped onto another network," he said. The federal government is giving the telecom companies that participated in Monday's meeting around two months to come up with a clear network resiliency plan. If the providers are unable to come up with one in that timeframe, Winseck said there are some levers Ottawa can pull. "They can issue an order-in-council under section eight of the Telecoms Act. They can also impose such obligations as a condition of license in the next round of spectrum auctions," he said. The industry minister could also factor the lack of a comprehensive resiliency plan into his ongoing review of Rogers' $26-billion proposed deal to buy Shaw, and in so doing "put a thumb on the scales in opposition to the deal," Winseck added.

(July 14, 2022) bnnbloomberg.ca

Croatia

The Regulatory Agency for Network Operations (Hrvatska regulatorna agencija za mrezne djelatnosti, HAKOM) has launched a public consultation on the allocation of spectrum in the 800MHz, 900MHz, 1800MHz, 2100MHz, 2.6GHz and 3.5GHz bands. The regulator is proposing to harmonize the expiry date of all concessions in those bands to 18 October 2024 to allow for a concurrent auction to be held for all bands to maximize the efficiency of spectrum use. The auction is expected to cover 60MHz in the 800MHz band, 70MHz at 900MHz, 150MHz at 1800MHz, 120MHz in the 2100MHz range and 140MHz in the 2.6GHz band. There will also be up to 80MHz available in the 3.5GHz band for regional (county level) operations. Licenses will be valid for 15 years, with an optional five-year extension. The public consultation is open until 16 September.

(August 15, 2022) www.commsupdate.com

Ecuador

The Ministry for Telecommunications and Information Society (Mintel) has unveiled its Digital Transformation Agenda 2022-2025 to 'reduce the digital divide and strengthen the digitization of processes, electronic commerce, security and modernity of the government'. The roadmap comprises seven main pillars focused on: digital infrastructure; culture and digital inclusion; digital economy; emerging technologies for sustainable development; digital government; interoperability and data processing; and digital security and trust. Presenting the Agenda earlier this week, Telecoms Minister Vianna Maino stressed the plan, which has been developed with input from more than 400 actors from industry, academia and government, will benefit everyone. 'We are thinking about everything and everyone when we put forward our proposals for digital transformation, from high speed connectivity, through to training for Ecuadorians, and cybersecurity,' she added. The Minister revealed last month that connectivity had been extended to an additional 3.3 million people during the first 13 months of President Guillermo Lasso's administration, with broadband services made available in 49 parishes across 17 provinces and 1,122 2G sites upgraded to 4G. (August 26, 2022) www.commsupdate.com

Estonia

The Consumer Protection & Technical Regulatory Authority (TTJA) has announced Telia as the winner of the country's second-phase 5G 3500MHz spectrum license auction, after the company placed the highest bid of EUR8.500 million (USD8.574 million). The auction spanned 70 rounds between 9 and 15 June, and the TTJA stated that the tightly competitive nature of the process 'illustrates once again that the introduction of 5G services to the market is very important for communication companies.' Telia's new concession – including 130MHz of spectrum within the 3410MHz-3800MHz range – far exceeded its starting price of EUR1.597 million. Telia's success in the secondary 3.5GHz auction follows rival Elisa's victory in the first license sale in late-May, with the latter paying EUR7.206 million for its 5G permit after 57 rounds of bidding. The third and final license auction will be announced by the regulator 'no earlier than the next working day after receipt of the state fee and license fee for the second frequency license.' Telia and Elisa will be ineligible to compete for the third 3.5GHz concession, leaving only one Estonian network operator, Tele2, to bid against Lithuanian cellco Bite.

(July 18, 2022) commsupdate.com

Germany

The Federal Network Agency (FNA) has finalized the regulatory framework for access to Telekom Deutschland's last mile fixed network, following the completion of a coordination procedure with the EC. The framework relates to the new conditions for access to Telekom's copper and newly created fiber-optic infrastructure at the wholesale level. Telekom is to make available and accessible any unused capacity in its ducts to other network operators that do not have dominance in the market. According to current assessments, the new framework conditions will apply for at least the next three years until they are replaced by new decisions by the FNA. The regulator says it is already preparing new data collection, on the basis of which the market conditions will be reviewed and the regulatory framework adjusted if necessary. 'With today's decision, we are creating framework conditions for fair competition and further fiber-optic expansion,' said Klaus Muller, President of the FNA, adding: 'I am pleased that our commitment to fiber-optic expansion with stable and transparent framework conditions passed the test before the European Commission.'

(July 25, 2022) commsupdate.com

The Federal Ministry for Digital Affairs and Transport has announced that its Gigabit Strategy 2030 has received approval from the Federal Cabinet. The latest strategy aims to achieve widespread coverage of fiber-optic networks and the latest mobile communications standard wherever people live, work and travel by 2030. The strategy outlines a number of key goals, including the supply of at least half of all German households and businesses with FTTH/B networks by the end of 2025 and better mobile phone coverage on railway lines. It proposes that building and site permits are simplified, with the possibility for construction to begin before the building permit is granted, the reduction of the separation distances provided for cell towers and a permit waiver for mobile towers and modifications to existing cell towers. It aims to increase acceptance of microtrenching and above-ground laying techniques, which deploy fiber-optic cables faster and with less capacity, among municipalities and companies in the construction industry. In order to track the implementation of the gigabit strategy, the Ministry is creating a new federal state secretary committee, which will meet at least four times a year to review the implementation of the gigabit strategy and, where necessary, make adjustments and provide assistance. In addition, it is establishing an institutionalized industry dialogue in order to improve cooperation between the state and the market in accelerating the expansion.

(July 15, 2022) commsupdate.com

Ghana

The government has invested USD200 million to enable the Ghana Investment Fund for Electronic Communications (GIFEC) to accomplish its rural telephony and digital inclusion projects across the country. The project, which forms part of the government's 'Ghana Rural Telephony and Digital Inclusion Project', seeks to facilitate the provision of universal access through the use of affordable information and communications technology for socio-economic development. Speaking at an event in the Eastern Region, Prince Ofosu Sefah, Administrator of GIFEC, reiterated the government's commitment to ensuring 95% mobile network coverage by December 2023, through the deployment of 2,016 rural sites. 'GIFEC is still counting on the government to continue this unprecedented investment in communities because people really need access to network and now getting network access is almost like the basic necessities of life,' he added.

(August 30, 2022) Ghanaian Times

The National Communications Authority (NCA) has denied media reports claiming it blocked Vodafone's proposed sale of its Ghana unit to rival Telecel Group, however it has not approved the transaction either. The European operator confirmed earlier this week intended to sell off its 70% share in its unit which was originally acquired from the state in 2006 for US$900 million. The regulator said in a press release it @wishes to state and clarify that the statement is false and should be disregarded as such. The NCA revealed that it received an application for the transfer of 70% majority shares in Vodafone Ghana to Telecel in January this year, but it did not meet the standards required for approval. "After critical regulatory review and evaluation, the NCA concluded that the request did not meet the regulatory threshold for approval to be granted," the NCA said in the statement but did not reveal what criteria Vodafone needed to hit. Vodafone declined to comment when Developing Telecoms reached out for comment.

(August 3, 2022) developingtelecoms.com

Guernsey

Following the completion of an investigation by the Guernsey Competition and Regulatory Authority (GCRA) in December 2021 in which it determined Sure Guernsey and JT Guernsey had agreed to control the provision of mobile network in the Bailiwick – including the future introduction of 5G – the watchdog has now confirmed fines for both operators. Issuing an update on the matter via press release, the GCRA announced that Sure has been fined GBP2.96 million (USD3.5 million) for its part in the matter, while it has imposed a financial penalty of GBP439,608 on JT. Outlining the methodology for calculating the fines, as well as offering up its reasoning behind its decision, the GCRA notably stated that it found Sure 'took active and intentional steps to prevent certain key evidence from coming to the attention of the Authority'. As a result of such behavior, the GCRA noted it had imposed an increase of 65% to the basic penalty to be levied 'in respect of this conduct'. On the flipside, in terms of mitigating factors the GCRA said it had considered that steps taken by 'constitute efforts to prevent a recurrence of the infringing conduct' and as such it said it had applied a reduction of 10% to that operator's fine. Sure too benefited from a 5% reduction in its fine thanks to changes it had subsequently made, though the regulator noted the reduction was less than its rivals as it considered Sure's measures 'less comprehensive and wide-ranging', while adding that they had not been adopted as quickly.

(July 22, 2022) commsupdate.com

Guinea

The government is still determined to resurrect the incumbent operator Societe des Telecommunications de Guinee (Sotelgui), now known as Guinee Telecoms. Following a visit to the company's headquarters on 30 June, Bamba Oliano, Secretary General of the Ministry of Posts, Telecommunications and Digital Economy, reiterated that the state is still seeking financial partners to relaunch the company. 'Among our objectives is the launch of Guinee Telecoms and the digitalization of the State as a whole … It will be the national operator that will support government communication, its launch will allow competition in the telephony sector to improve the quality of service. This will reduce the cost of communication and access to the internet,' he said. For his part, Samoura Lamine, chief coordinator of Guinee Telecoms, claimed the operator has a total of 183 GSM, LTE and transmission sites throughout the country, including 151 4G sites, and is planning to acquire a global license permitting the operation of 3G and 4G services and fiber-optic infrastructure delivering TV, broadband and fixed telephony networks. Guinea has been without a fixed telephone network since Sotelgui was declared bankrupt in February 2013, leaving the country reliant on mobile networks owned by international companies. With a view to creating a new legal entity which would take over its assets and activities, former President Alpha Conde issued a decree in September 2017 formally dissolving the company and assuming responsibility for its debts. However, despite a series of announcements in recent years, little progress has been made in reviving the operator. (July 4, 2022) Mosaique Guinee

India

The government has ordered state-owned telco Bharat Sanchar Nigam Limited (BSNL) to only work with domestic vendors for its 4G and 5G projects, the Times of India writes. The localization effort is part of the government's 'Make in India' policy, which aims to fuel the growth and development of the country's manufacturing industry by encouraging the use of goods and services produced in India. During discussions with BSNL's management, communications minister Ashwini Vaishnaw was quoted as saying of the operator's long-delayed network upgrade and expansion plans: 'We are infusing so much money (through the revival package) because BSNL is as strategic company in a strategic sector. In a strategic public sector undertaking (PSU), we will use only trusted inputs and technologies which are "Made in India" under the 'Atmanirbhar Bharat' [self-reliant India] program.' The official went on to dismiss doubts regarding the reliability of locally developed solutions, saying that some 'teething problems' were to be expected but would be addressed and improved over time. The government last month approved a revival package for BSNL valued at more than USD20 billion, including funds for the allocation of 4G airwaves and the rollout of 4G infrastructure.

(August 15, 2022) www.commsupdate.com

India has completed its 5G spectrum auction, which saw the four bidders – Reliance Jio Infocomm (Jio), Bharti Airtel, Vodafone Idea (Vi) and Adani Data Networks – spend a total of INR1.5 trillion (USD18.97 billion) on frequencies in the 700MHz, 800MHz, 1800MHz, 2100MHz, 3.5GHz and 26GHz bands. There were few surprises in terms of bidding, with mobile market leaders Jio and Airtel spending heavily to shore up their 4G spectrum holdings and prepare for their respective 5G launches, whilst cash-strapped Vi bid more conservatively on 5G airwaves in selected markets, and newcomer Adani acquired 5G frequencies in a handful of selected markets. Notably, the sale saw the Department of Telecommunications (DoT) finally offload a portion of 700MHz frequencies, after its previous two attempts to sell spectrum in that band failed due to the high reserve prices set by the government. Prices for the sub-GHz band were still set too high for most of the participants, however, and only Jio bid for the frequencies, securing 2×10MHz nationwide. Jio's total spend at the auction was INR880.8 billion, nearly half of which (INR364 billion) was from its pan-India 700MHz purchase. In addition to the 700MHz band, Jio also acquired pan-India spectrum in the 3.5GHz and 26GHz ranges, as well as 800MHz airwaves in four circles and 1800MHz in six. In a statement following the auction, Jio said that it was prepared for a rapid 5G rollout: 'Jio has acquired a unique combination of low-band, mid-band and mmWave spectrum, which coupled with our deep fiber network and indigenous technology platforms will enable us to provide "5G Everywhere" and "5G For All".' For its part, meanwhile, Airtel spent a total of INR430.8 billion on pan-India 3.5GHz and 26GHz spectrum alongside 900MHz (three circles), 1800MHz (six circles) and 2100MHz (six circles) blocks. Regarding its strategy, in particular its decision to eschew the 700MHz band, Airtel CEO Gopal Vittal was quoted as saying: 'This spectrum acquisition … has been a part of a deliberate strategy to buy the best spectrum assets at a substantially lower relative cost compared to our competition. This will allow us to raise the bar on innovation and address the emerging needs of every discerning customer who demands the best experience in India.' Vi's total spend amounted to INR187.8 billion and included the purchase of 5G spectrum in the 3.5GHz band for 17 circles and the 26GHz band in 16 circles. Vi also acquired additional 4G spectrum in three circles: 1800MHz and 2500MHz spectrum in Andhra Pradesh; 2100MHz spectrum in Karnataka; and 2500MHz in Punjab. Finally, Adani paid a total of INR2.1 billion for 26GHz licenses in six circles: Andhra Pradesh, Gujarat, Karnataka, Mumbai, Rajasthan and Tamil Nadu.

(August 2, 2022) www.commsupdate.com

The Department of Telecommunications (DoT) has published a consultation paper on the need for an overhaul of the legal framework governing the country's telecommunications industry. The short document argues that, in light of the rate of change in the market in recent years, there is a need for the regulatory environment to be updated to keep pace with those developments. The DoT's paper provides little in the way of specific proposals and the ministry has invited comments from industry stakeholders by 25 August 2022. In terms of specific plans, DoT said that the new law should simplify the regulatory framework whilst providing for continuity of existing rules and guidelines to minimize disruption and promote investment. In particular, the new law should not modify terms and conditions with retrospective effect in a way that would negatively impact those affected by the change. The new law should also provide for the licensing of new players within the value chain such as infrastructure providers, Right of Way (RoW) providers and service providers. The paper highlights seven key areas that need to be addressed, the majority of which have been contentious issues over the last decade. The topics in question are: spectrum management, which the DoT says should be more flexible; RoW, with the development of common ducts and an effective dispute resolution process to be priorities; the scope of the Universal Service Obligation Fund (USOF); the development of a system to ensure that penalties are proportionate to offences; public safety and national security, including provisions for national emergencies and an update set of safety standards for equipment; the simplification of the procedures for mergers and acquisitions; and provisions for insolvency with regards to continuity of service and spectrum rights.

(July 25, 2022)

Ireland

The Commission for Communications Regulation (ComReg) has launched a consultation on a proposal to issue short-term licenses for spectrum in the 700MHz and 2100MHz, as it seeks to avoid 'significant consumer disruption'. With existing concessions in these bands scheduled to expire in October 2022, the regulator had hoped to have concluded a planned multi-band spectrum auction of 700MHz, 2100MHz, 2300MHz and 2.6GHz frequencies prior to that date. However, last month the High Court issued a stay order preventing the auction from proceeding, following an appeal against the regulator's plans for the sale process by local cellco Three Ireland. Now, with a view to ensuring the auction delay does not impact consumers, ComReg has proposed putting in place a short-term (up to six months) licensing framework for 700MHz and 2100MHz frequencies from 2 October 2022. In terms of proposed fees, the regulator intends to charge EUR401,000 per 2×5MHz block in the 700MHz band for a three-month period and EUR212,000 for the same size block of 2100MHz spectrum. Further, as part of an accelerated consultation process, it is calling for input from interested parties by 31 August 2022, while it envisages issuing a final decision and final draft regulations by mid-September 2022. (August 25, 2022) www.commsupdate.com

Following the news that Ireland's High Court had last month had made an order granting a stay on the auction of spectrum in several bands which had been scheduled to start on 25 July 2022, the Commission for Communications Regulation (ComReg) has now launched an appeal against that ruling. In a press release announcing the development, ComReg confirmed it had lodged its appeal on 25 July, while noting that on 29 July the Court of Appeal made directions setting down the appeal for hearing on 19 October 2022. Three Ireland asked the High Court to halt the multi-band spectrum auction in early July, while it awaited judgment on its main challenge to ComReg's December 2020 decision to auction the rights across the 700MHz, 2100MHz, 2300MHz and 2.6GHz spectrum bands. With the sale process set to utilize a 'combinatorial clock' format – whereby participants bid on generic lots of spectrum, rather than individual lots – Three has claimed this format would put it at a competitive disadvantage.

(August 3, 2022) www.commsupdate.com

The Commission for Communications Regulation (ComReg) has announced that the High Court has made an order granting a stay on the auction of spectrum in several bands which had been scheduled to get underway today (25 July). Earlier this month Three Ireland asked the High Court to halt the multi-band spectrum auction while it awaited judgment on its main challenge to ComReg's December 2020 decision to auction the rights across the 700MHz, 2100MHz, 2300MHz and 2.6GHz spectrum bands. With the sale process set to utilize a 'combinatorial clock' format – whereby participants bid on generic lots of spectrum, rather than individual lots – Three claimed this format would put it at a competitive disadvantage. Now, issuing a press release regarding the High Court's ruling, ComReg noted that the stay has been granted 'subject to Three providing certain undertakings', while Mr. Justice McDonald was said to have expressed the view that the stay will remain in place 'for no more than a few months. That being said, with ComReg noting that the effect of this judgment is that its multi-band spectrum auction is now effectively suspended from progressing any further pending a final ruling, it has suggested that is unlikely to be able to issue new long-term licenses in advance of existing concession expiring on 15 October 2022. Given that, the regulator is seeking submissions to a consultation in which it has proposed the issuing of short-term rights of use for spectrum in the 2100MHz band.(July 25, 2022) commsupdate.com

Isle of Man

Having opened a consultation on new Electronic Communications Licenses in March 2022, the Isle of Man's Communications and Utilities Regulatory Authority (CURA) has now released draft concessions. In an Information Notice regarding the CURA said that these draft licenses will be available for a 14-day period for review and for license holders to notify it of any issues. Following this period, the new concessions will be officially assigned. According to the CURA, it received just a single response to its consultation related to the new licenses, that being from Manx Telecom. However, the regulator said that this response 'did not comment on any of the specifics in the licenses and instead, in the opinion of the Authority, sought to re-open a closed consultation on the principles and policy underpinning the new licenses and also discussed the Authority's licensing policy, alleging the Authority was not following previous practice'. As such, the CURA said it was satisfied there were no 'substantive' issues with the licenses and has pressed ahead with releasing the draft concessions for review. Previously, the CURA stated that the country's new overarching legislation – the Communications Act 2021, passed in April 2021 – created 'a need for a revision of the Authority's policy in terms of issuing licenses, specifically to modernize its approach to licensing services to bring the licensing regime in the Isle of Man in line with international best practice'. To that end, three main policy changes had been proposed by the regulator, those being: for licenses to have a specific end date as opposed to the current position whereby concessions were revocable on one year's notice; that the distinction between ISP and 'full' telecommunications licenses would be removed; and for fees to be levied at the same proportion and turnover as in an ISP license. (July 27, 2022) commsupdate.com

Italy

The Communications Regulatory Authority (Autorita per le Garanzie nelle Comunicazioni, Agcom) has given the green light to a proposed joint venture between WINDTRE and Iliad which will deploy a shared mobile network in rural areas of the country. The watchdog says there are no issues regarding competition, saying the tie-up will be of benefit to rural customers and could encourage other firms to deploy networks in underserved areas. In April WINDTRE said it would transfer 7,000 rural mobile towers and around 50 employees to a new networks subsidiary and Iliad would then acquire a 50% stake, with the JV used to build the shared 5G infrastructure. The towers cover around 25% of Italy's population.

(August 10, 2022) www.commsupdate.com

Japan

The Ministry of Internal Affairs and Communications (MIC) has issued an administrative guidance to mobile network operator (MNO) KDDI Corp, ordering it to take measures to prevent a repeat of the recent network failure that left more than 30.91 million KDDI customers without services for 61 hours. The outage – which was sparked after KDDI initiated routine network maintenance – occurred on 2 July and lasted until 4 July. On 3 August the MIC took the 'rare' decision to issue the MNO with a warning to ensure it does not happen again. 'We took the incident extremely seriously as it was longer and more widespread than past network disruptions,' said telecoms minister Yasushi Kaneko in handing out the written guidance. The minister went on to state that KDDI 'should make the utmost efforts to avoid a recurrence with the full awareness that it plays a crucial role in supporting essential societal infrastructure'. Meanwhile, in the wake of the network failure the MIC is drawing up new telecom policy, due by end-2022, to ensure end users will remain connected in an outage by allowing them to connect to another operator's network. (August 4, 2022) www.commsupdate.com

Japan prepared for an expected surge in demand for data traffic once full 5G deployment is reached by upping its near-term coverage targets and outlining plans for further spectrum allocations. In a keynote, Atsushi Umino, Deputy Director-General for International Digital Infrastructure Promotion at Japan's Ministry of International Affairs and Communications set the target of achieving 98 per cent 5G population coverage nationwide by end-March 2024. Japan plans to begin assigning spectrum in the 2.3GHz band later this year and triple allocations across all compatible bands in 2025. Umino added the government will also introduce a process for prioritizing remote areas currently unsuited for commercial base station deployments and provide financial support to promote 5G development, with the aim of closing the coverage gap. In addition, it will promote infrastructure sharing by setting subsidy requirements for operators. The government also laid out plans to decentralize data centers to improve resilience and add redundancy. Tokyo houses 60 per cent of Japan's data centers: the government plans to build more than 12 regional data centers over the next five years. The initiatives are part of efforts unveiled in March to boost cooperation between the public and private sectors to revitalize rural economies, which have faced depopulation as people migrate to major cities for employment, Umino explained.

(August 3, 2022) www.mobileworldlive.com

Jersey

The Jersey Competition Regulatory Authority (JCRA) has concluded a review of competition in the market for business connectivity, and ruled that fixed line incumbent JT will be required to take further steps to open up the wholesale market to other operators and will continue to be subject to price controls. According to the regulator, by directing JT to supply wholesale leased lines to other operators, it is 'promoting effective competition and choice in the market'. Of note, the JCRA has confirmed that the price at which JT can offer wholesale leased lines to other operators is to be capped at 31% below the retail price, which it said equates to a further reduction of 11% on JT's current wholesale prices. Meanwhile, the regulator claims to have developed 'a more robust regulatory framework for the supply of wholesale leased lines enabling other licensed operators to migrate services while also providing greater transparency and certainty for all business users'. Commenting on the matter, Peter Hetherington, Senior Economic Case Officer for the JCRA, said: 'Business connectivity services are vital in supporting the Jersey economy and ensuring it continues to grow and remain competitive. This consultation was an extremely important and valuable exercise that has resulted in better competition in the business connectivity market that will lead to increased choice, lower prices, and improved benefits for customers.'

(July 20, 2022) commsupdate.com

Kenya

Airtel Africa has announced that its Kenyan subsidiary has purchased 60MHz of additional spectrum in the 2600MHz band from the Communications Authority of Kenya (CA) for USD40 million. The license is valid from July 2022 for a period of 15 years. Airtel Kenya will use the additional spectrum to support its 4G network capacity expansion in the market for both mobile data and fixed wireless home broadband services. The firm said it will also allow for future 5G rollout, 'providing significant capacity to accommodate its continued strong data growth in the country'. Airtel Africa noted that the investment reflects its continued confidence in the Kenyan market, supporting the local communities and economies through furthering digital inclusion and connectivity.

(July 26, 2022) commsupdate.com

Lithuania

The telecoms watchdog the Communications Regulatory Authority (Rysiu Reguliavimo Tarnyba, RRT) has commenced the auction of 5G mobile spectrum in the 3.5GHz band, reports Verslo Zinios. The tender comprises the sale of three 100MHz blocks of spectrum in the 3400MHz-3700MHz range, with initial prices set at EUR3 million (USD3.0 million) per lot. Spectrum licenses are valid for an initial period of 20 years. Winning bidders are subject to certain rollout and service provision obligations, including requirements to: launch commercial 5G services in at least one city from 2023; deploy 5G networks in major cities from 2024; and extend 5G coverage to all towns and compact built-up areas by 2030. An additional 5G spectrum auction comprising frequencies in the 700MHz band, which kicked off in May, is still ongoing.

(July 13, 2022) commsupdate.com

Macau

The government of Macau has renewed the 3G and 4G licenses of incumbent cellcos CTM, Hutchison Telecom Macau (3), SmarTone Macau and China Telecom Macau. The expiry dates of 3G concessions have been extended from June 2023 to June 2025, while those for 4G have been extended from June 2023 to June 2028. The cellcos are currently awaiting the award of 5G licenses, which is expected to take place early next year. (July 26, 2022) commsupdate.com

The Macau Post and Telecommunications Bureau (CTT) reportedly called on mobile operators to bid for four 5G licenses, with commercial services of the next-generation technology expected to start in Q1 2023, nearly three years after operators launched in Hong Kong. Macau Daily Times reported CTM, SmarTone, 3 Macau and China Telecom have until 12 August to submit bids and detailed network construction plans. The government set the target for winners to cover 50 per cent of the territory within 12 months of receiving a license and full coverage within 18 months. CTM claims its 5G network has been fully operational since June 2021 and pushed the government to hold a tender for the incumbents, the newspaper stated. Mobile operators in Hong Kong launched 5G services in Q2 2020. (July 5, 2022) mobileworldlive.com

The Netherlands

Dutch telecom regulator Agentschap Telecom (AT) will over the coming few months start checking the coverage of the 700 MHz licenses. The three MNOs must achieve at mobile internet speeds of at least 8 Mbps throughout the Netherlands. The first measurement results should come out in the fourth quarter.

(August 25, 2022) www.telecompaper.com

Nigeria

The Nigerian Communications Commission (NCC) has commenced public inquiry on some draft telecom regulations and guidelines as part of its commitment to address challenges in the Country's communication sector. At the opening ceremony the Executive Vice Chairman, NCC, Prof. Umar Danbatta noted that these key regulatory instruments have been developed to address the challenges of the dynamic and ever evolving communications industry. This Public Inquiry is also in tandem with the Commission's strategy of consulting its stakeholders in all its regulatory interventions. The regulatory instruments being reviewed cut across all sectors/segments of the telecommunications industry. guidelines on technical specifications for the deployment of communications infrastructure. "The first instrument, the Type Approval Regulations, provide

a framework for the approval of communications equipment for connection to communications networks in Nigeria, pursuant to sections 130 to 134 of the Nigerian Communications Act, 2003. It is pertinent to add that the Commission has also introduced Business Rules for Type Approval to address issues that cannot be catered for in the Regulations and ensure that the Type Approval process is seamless. The second instrument, Guidelines on Short Code Operation in Nigeria, is intended to prescribe a standard of practice for providers of short code services and to provide a revised framework for the provision of these services and for the protection against misuse. "The third instrument, being the Guidelines on Technical Specifications for the Deployment of Communications Infrastructure, provides standards to be adhered to by Communications services providers/operators, designers, fabricators and installers of Communications towers and laying of fibre optic cables towards ensuring environmental safety and sound engineering practices. The fourth instrument, is the Guidelines on Advertisements and Promotions, which provides minimum requirements and standards for promotional advertisements by licensed telecommunications operators in Nigeria. Finally, the fifth instrument, which is the Consumer Code of Practice Regulations, amongst other things, sets rules for consumer protection and prescribes the procedures to be followed by a Licensee in preparing approved consumer codes of practice, in accordance with section 106 of the Act." Danbatta stated that all (5) five regulatory instruments are existing instruments which are being amended to reflect current realities. According to him, one of such realities is that with the deployment of 5G, it will become necessary for Mobile Network Operators (MNOs) to invest heavily in communications infrastructure. The EVC further disclosed that the NCC has been working assiduously to implement the Nigerian National Broadband Plan (NNBP) 2020 – 2025, the National Digital Economy Policy and Strategy (NDEPS) 2020 – 2030, its Strategic Management Plan (SMP) 2020-2024 and its Strategic Vision Implementation Plan (SVIP) 2021 – 2025 and achieve its mandate. According to him, this drive has culminated in the Broadband penetration in Nigeria increasing by 91.70 per cent in the last four years. "The country's broadband penetration increased from 21.21 per cent in April 2017 to 40.66 per cent in April 2021. The Commission's data show that in April 2021, 77,605,500 million Nigerians were connected to the Internet, up from 40,481,570 million in April 2017.

(August 10, 2022) newsdiaryonline.com

Papua New Guinea

The Government said it will make a final decision on the partial privatization of operator Telikom PNG soon. Acting Managing director David Kavanamur told local publication The National, that the state-owned operator is looking at prices being offered for shares in the company. "'The partial privatization is an ongoing process that's continuing with potential partners … We have issued an information memorandum and they are continuing to undertake due diligence … We are looking at one partner and hopefully we should complete that. But (it's) depending on what's on the table, and what they are offering for the assets being offered on the market. There is a certain price that we are negotiating with the potential buyers," said Kavanamur. The operator's company pension plan has been given priority in the privatization process as the National Superannuation Fund (Nasfund) was named as one of the entities to carry out due diligence on the deal. Nasfund chief executive officer Ian Tarutia told The National in December the company had signed an MoU with consortium partners to invest in Telikom. In the same month, the government gave the green light for the sale of Telikom assets valued at 1.4 billion.

(August 23, 2022) www.developingtelecoms.com

Peru

The Ministry of Transport and Communications (Ministerio de Transportes y Comunicaciones, MTC) has launched broadband network expansion programmes in Tacna and Moquegua that will benefit around 40,000 residents of both regions. The Tacna project represents investment of USD25 million and will comprise the deployment of 630km of fiber and the construction of 74 nodes serving 103 public institutions in the region, including schools, police stations and health centers. In addition, Wi-Fi zones will be established at 52 rural locations, providing free internet access for residents and visitors. Similarly, the Moquegua project will see the deployment of connectivity to 107 public institutions and Wi-Fi zones in 66 rural locations. The program will cost USD28 million and will feature the rollout of 586km of fiber as well as the construction of 77 nodes.

(August 19, 2022) www.commsupdate.com

The new Electronic Communications Law (LCE), which transposes the European Electronic Communications Code (EECC) into national law and was approved by parliament on 21 July 2022, has now been published in the Official Gazette (Diario da Republica) and will take effect in 90 days (by 14 November 2022). In April 2022

the EU referred Portugal and nine other member states to the European Court of Justice (ECJ) over their failure to transpose the EECC into national law. The original deadline to implement measures outlined in the EECC was 21 December 2020.

(August 18, 2022) www.commsupdate.com

The National Communications Authority (Autoridade Nacional de Comunicacoes, ANACOM) has approved the downward revision of the maximum monthly fees of Altice Portugal's (MEO's) reference offer for access to ducts (ofertas de referencia de acesso a condutas, or ORAC) and the reference offer for access to masts (ofertas de referencia de acesso a postes, ORAP). According to the new decision, MEO must reduce the maximum monthly prices for ORAC by 35% and ORAP by 20%, retrospectively from 15 February 2022. The ANACOM has been regulating MEO's ORAC/ORAP since 2006.

(August 3, 2022) www.commsupdate.com

Portugal

The Portuguese Competition Authority (Autoridade da Concorrencia, AdC) has approved the acquisition of a portfolio of 350 cell sites (towers and rooftops) of Portuguese operator Nos by ON Tower Portugal, a subsidiary of Cellnex Group, after ruling that the deal was not likely to create significant obstacles to effective competition in the national market. In April 2022 Nos agreed to sell the cell sites to Cellnex Telecom in a deal worth EUR155 million (USD166 million). The transaction represents an extension of the long-term partnership established between the two companies in 2020; the initial agreement involved the disposal of the telco's Nos Towering unit to Cellnex for EUR375 million. Currently, Cellnex owns and operates more than 5,000 macro-sites in Portugal, via OMTEL, ON Tower Portugal, InfraTower and Hivory Portugal.

(July 4, 2022) commsupdate.com

Romania

The National Authority for Management and Regulation in Communications (ANCOM) has published draft tender documents for the auction of spectrum in the 700MHz, 1500MHz, 2600MHz and 3400MHz-3800MHz frequency bands later this year. Following analysis of several factors, the regulator has proposed a reserve price of EUR694 million (USD693 million) for user rights to 555MHz of frequencies in the four bands. The usage rights will take effect in 2023 or 2026 and have a validity of 20 years, except for the rights in the 2600MHz band which will apply for six years and three months, in order to align them with the existing rights in the band. According to the tender documentation, ANCOM proposes that the winning bidders ensure broadband coverage of most urban areas, existing motorways, international airports and modernized railways, as well as 600 localities identified as having no or poor mobile coverage.

The Authority proposes to allocate the spectrum as follows:

- six blocks of 2×5MHz in the 700MHz band FDD (703MHz-733MHz/758MHz-788MHz), valid for 20 years from 1 January 2023; reserve price of EUR55 million per lot
- three unpaired blocks of 5MHz SDL in the 700MHz band (738MHz-753MHz); 20 years from 1 January 2023; EUR14 million per lot
- eight unpaired blocks of 5MHz SDL in the 1500MHz band (1452MHz-1492MHz); 20 years from 1 January 2023; EUR6 million per lot
- four blocks of 2×5 MHz FDD in the 2600MHz band (2550MHz-2570MHz/2670MHz-2690MHz); valid from 1 January 2023 to 5 April 2029; EUR3.25 million per lot
- 40 unpaired blocks of 10MHz TDD in the band 3400MHz-3800MHz; 20 years from 1 January 2026; EUR6.5 million per lot.

Interested parties are invited to submit their comments on the proposed license fees and payment conditions by 27 July and the selection procedure before 10 August.

(July 15, 2022) commsupdate.com

The National Authority for Management and Regulation in Communications (ANCOM) has announced the European Electronic Communications Code (EECC) has now been transposed into national legislation. The code provides Romanian telecoms users with greater rights in their relationship with service providers, and increases information and protection for end users across the EU. The regulator notes Law No. 198/2022 of 6 July 2022 is intended to stimulate competition, increase investment in 5G networks, establish predictable regulations for radio spectrum management, promote connectivity and improve the quality of electronic communication services. The new law will notably enable ANCOM to begin organizing the long-delayed 5G auction for spectrum user rights in the 700MHz, 1500MHz, 2600MHz and 3400MHz-3800MHz bands.

(July 13, 2022) commsupdate.com

Russia

A recent meeting of Russia's State Commission for Radio Frequencies (SCRF) under the Ministry of Digital Development, Communications & Mass Media resolved to transfer millimeter wave (mmWave) frequencies in the 24.25GHz-27.5GHz band from existing radio relay station usage to 5G access networks. The Ministry has developed proposals for amending the national frequency table in accordance with the resolution. Furthermore, a resolution was reached to proceed with plans to allocate the '4GHz' band to public wireless services usage to help support network operators' 5G rollouts. Initiatives may come into force from 2023 onwards. The Ministry also clarified that all such developments should be implemented using Russian-produced base stations only. Only a small part of the mmWave band has so far been released for 5G: in July 2020 MTS was awarded a commercial nationwide 5G mmWave license in the 24.25GHz-24.65GHz band (within the 'n258/26000' official band), valid for five years, although MTS admitted that requirements for Russian-produced equipment might restrict its development of services in the band. Temporary trial 5G permits have meanwhile been issued for other frequencies in the 25.25GHz-27.5GHz range, supporting pilot/test networks for operators including MTS, MegaFon, Rostelecom/Tele2 and Beeline, while MTS currently operates a 4.9GHz 5G user pilot in several cities. Furthermore, in December 2021 the SCRF allocated the 4400MHz-4555MHz and 4630MHz-4990MHz bands to the multi-operator New Digital Solutions joint venture under a two-year test permit.

(July 8, 2022) TelecomDaily

South Africa

The Independent Communications Authority of South Africa (Icasa) has begun the process of making more radio frequency spectrum available to telecommunications operators who want to provide broadband services. Icasa said that the purpose of the notice is to solicit views from interested stakeholders regarding the IMT radio frequency spectrum bands to be considered by Icasa further stated that the second phase of the IMT Spectrum licensing process will provide additional capacity to licensees in order to meet the continuous demand for capacity growth in mobile services. The authority said that this will also contribute towards achieving the capabilities and requirements of IMT-2020 systems and beyond for the deployment of Fifth Generation (5G) Networks in order to achieve the South Africa Connect targets, as well as to contribute to the United Nations Sustainable Development Goals. The main aim of licensing the low and mid frequency bands within the designated frequency ranges is to increase nationwide broadband access for all citizens by 2025. "The Authority reiterates its determination to support the development and uptake of IMT services for the benefit of economic growth, job creation and access by the people of South Africa to online services, information and communication. The current IMT Roadmap process and the Long-term Spectrum Outlook consultation signal the Authority's commitment to making the necessary spectrum available in an orderly and timely fashion," Icasa said in a statement. "The current information memorandum is primarily focused to proceed with the licensing of the unsold "Lot 9" in the 800 MHz radio frequency band, resultant from the inaugural auction, and those mid band IMT radio frequency channels that are currently and immediately available", Councillor Peter Zimri of Icasa said.

(August 21, 2022) www.iol.co.za

South Korea

South Korea's Ministry of Science and ICT (MSIT) has confirmed it plans to award new 5G suitable frequencies to mobile network operator (MNO) LG Uplus. In December 2021 the MSIT said it would open bidding for a 20MHz block of spectrum in the 3.5GHz band (3.40GHz-3.42GHz), following a request by LG Uplus, before subsequently stating the new frequencies would be priced at KRW135.5 billion (USD113 million). However, in February 2022 it delayed the awarding of the frequencies amid a continued dispute between operators related to the terms of the frequency sale. Now, in a press release confirming its decision regarding the spectrum allocation, the MSIT said it plans to award LG Uplus a 20MHz block in the 3.4GHz band (3.40GHz-3.42GHz), having reviewed the usage plans for the spectrum submitted by the MNO last month. Earlier this month the MSIT revealed that LG Uplus was the only company to have applied for the frequencies in question. According to local press reports, meanwhile, it is understood that LG Uplus will pay KRW152.1 billion for its new spectrum, with the frequency allocation itself to be valid between 1 November 2022 and 30 November 2028. Of note, as part of the spectrum award LG Uplus has agreed to an obligation under which it must have constructed a total of 130,000 5G base stations by the end of this year, rising to 150,000 by the end of 2025.

(July 15, 2022) commsupdate.com

Thailand

The telecoms regulator pushed back a long-awaited decision on a proposed merger of True Corp and dtac after concluding details provided by the companies was not sufficient to design measures to protect consumers. The National Broadcasting and Telecommunications Commission's (NBTC) five-member board asked for additional information on the impact of the merger on consumers and the industry, along with examining studies conducted by four subcommittees, Chulalongkorn University and an independent financial adviser, the newspaper wrote. Fresh analysis on the potential costs savings of the deal, the spectrum holdings of the new company, possible steps to reduce tariffs and measures to promote MVNOs was requested. Thai PBS stated opposition party Move Forward called on the NBTC to reject the deal, citing findings the merger could lead to a 12 per cent to 40 per cent hike in prices, NBTC began reviewing the proposed tie-up in February.

(August 5, 2022) The Nation

The National Broadcasting and Telecommunications Commission (NBTC) is imposing tougher measures on mobile network operators (MNOs) that allow the registration of more than five SIM cards by an individual through dealers, vowing to fine the carriers THB1 million (USD27,600) per day for violating the restriction. The regulator has given MNOs 30 days to comply with the new directive before being fined.

(July 6, 2022) commsupdate.com

Uganda

The Uganda Communications Commission (UCC) has opened a public consultation on the framework for monitoring coverage obligations of the country's mobile network operators (MNOs). The consultation has called for comments on aspects such as data collection, reporting and verification. Each cellco is required to submit an annual coverage implementation plan and regular progress reports. Uganda's mobile market is dominated by two main players, MTN and Airtel, which between them account for around 95% of all subscriptions. Uganda Telecom Ltd (UTL) and Smile Communications serve the remainder.

(August 23, 2022) www.commsupdate.com

The parliament has urged local cellcos to improve voice and data bundles and reduce cross-network fees to help consumers. MPs have urged the Uganda Communications Commission (UCC) to work with operators to ensure that voice and data products do not expire after a given time period and a dormant account can be reactivated by the user with their remaining data and call minute allowances intact. Authorities are also looking to stop telcos charging more for calls to other networks, which they say has created 'unhealthy monopolistic tendencies. Moses Magogo, head of the Committee on ICT and National Guidance, said: 'UCC should … enhance engagements with the telecommunication operators to develop and provide a broad range of bundles that will encourage customers to access internet and call subscriptions.' The Uganda's mobile market is dominated by two main players, MTN and Airtel, which between them account for around 95% of all subscriptions.

(July 15, 2022) commsupdate.com

United States

Auction 108, the latest in a long line of Federal Communications Commission (FCC) spectrum sales, has got off to an underwhelming start, attracting bids of just USD103.5 million after the first day of bidding on 29 July. A further two rounds of bidding took place on 1 August, with bids edging up to just USD115.3 million by close-of-play. Auction 108 is offering approximately 8,000 flexible use geographic overlay licenses in the 2496MHz-2690MHz (2.5GHz) band. Up to three blocks of spectrum are being licensed on a county basis. Notable bidders include: Cellco Partnership (Verizon Wireless), AT&T Auction Holdings, United States Cellular Corporation (UScellular), T-Mobile License (T-Mobile US) and Cellular South Licenses (C Spire). By contrast, the previous – albeit non-chronologically ordered FCC auction (Auction 110) – generated opening day bids of USD672.4 million in October 2021. That auction comprised spectrum in the 3.45GHz–3.55GHz band.

(August 2, 2022) www.commsupdate.com

The Department of Commerce's National Telecommunications and Information Administration (NTIA) has announced that all 50 US states, the District of Columbia and all unincorporated US territories have confirmed their participation in the Biden-Harris administration's 'Internet for All' initiative, as announced in May. Going forward, the USD42.45 billion 'Broadband Equity, Access, and Deployment (BEAD)' program will enable all states and territories to expand fixed broadband access by funding planning, infrastructure deployment and adoption initiatives. US Secretary of Commerce Gina Raimondo commented: 'The Department of Commerce is committed to ensuring all Americans have access to the internet, which is vital for our economic future. Beyond access, we also must enable meaningful internet use and provide people with tools to participate in education and training, access health care, and thrive in the digital economy. The Internet for All initiative will help states and territories

accomplish both goals.' Note: in total, President Biden's Bipartisan Infrastructure Law, also known as the Infrastructure Investment and Jobs Act, has committed USD65 billion to ensure all Americans have access to affordable, reliable internet access.
(July 15, 2022) commsupdate.com

The Federal Communications Commission (FCC) has confirmed that 82 applicants are qualified to bid in Auction 108. Notable bidders on the complete list include: Cellco Partnership (Verizon Wireless), AT&T Auction Holdings, United States Cellular Corporation (UScellular), T-Mobile License (T-Mobile US) and Cellular South Licenses (C Spire). (Note: according to Fierce Wireless, DISH Network is registered as Carbonate Wireless.) In the US overseas territories, meanwhile, bidders include Puerto Rican operators Aeronet Wireless Broadband and Puerto Rico Telephone Company (Claro); American Samoa Telecommunications Authority (ASTCA) and AST Telecom (Bluesky) in American Samoa; DOCOMO Pacific and PTI Pacifica (IT&E), which operate in Guam and the Northern Marianas Islands; and Guam-based TeleGuam Holdings (GTA). Auction 108 will offer new flexible use geographic overlay licenses in the 2496MHz-2690MHz (2.5GHz) band. Up to three blocks of spectrum will be licensed on a county basis, meaning approximately 8,000 licenses will be up for grabs. (July 13, 2022) commsupdate.com

Zambia

Telecoms regulator the Zambia Information and Communications Technology Authority (ZICTA) has published a revised '5G Spectrum Roadmap' setting out updated timelines for its planned release of spectrum in the 700MHz, 2600MHz and 26GHz bands. As per the updated roadmap for 'high demand spectrum', ZICTA revealed that 700MHz frequencies which had initially been expected to be released in the first quarter of 2023 will now be issued earlier, in Q3 2022. Meanwhile, the regulator also announced that a 40MHz block in the 2600MHz band that went unsold in its tender of 800MHz/2600MHz frequencies – which concluded last month – will now be reoffered in 3Q22. Finally, the regulator has announced that spectrum in the 26GHz band will be open for assignment on a first-come, first-serve basis in the fourth quarter of 2022; previously it had said it intended to offer these frequencies in 3Q22. In a statement regarding the revised timelines, the ZICTA noted: 'These critical changes to the roadmap are part of the urgent measures to improve competition in the ICT sector, promote investment and accelerate the extensive provision of services in underserved and unserved areas as well as improve the quality of electronic communication services for consumers in the country.' (August 5, 2022) www.commsupdate.com

The Zambia Information and Communication Technology Authority (ZICTA) has announced the results of its tender for the allocation of new spectrum in the 800MHz and 2600MHz bands, launched in April 2022. In a press release confirming the outcome of the spectrum sale, ZICTA revealed it had raised a total of USD41.55 million in the sale process, with Airtel Zambia emerging as the biggest spender; the cellco offered a total of USD29.00 million for 20MHz in the 800MHz band and 50MHz in the 2600MHz band. Meanwhile, MTN Zambia bid USD12.55 million for 50MHz in the 2600MHz band. ZICTA noted, however, that a 40MHz block in the 2600MHz remained unsold. Commenting on the matter, a statement from ZICTA said: 'The licensing of the 20MHz spectrum in the 800MHz band and two lots of the 50MHz spectrum bands in the 2600MHz will provide improved quality of service on both voice and data services as well as facilitate the deployment of 5G services and expand network coverage by ensuring that services are taken to the underserved and unserved areas of the country'.
(July 22, 2022) commsupdate.com

Zimbabwe

The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) has allowed the country's telcos to implement tariff increases to help them combat soaring inflation and a weakening local currency. The last headline tariff review was made in September last year, since when inflation has risen from 51% to more than 191% as of June 2022, The Herald writes. Last month state-owned fixed line operator TelOne said it was struggling to stay in business amid the ongoing economic crisis and called on POTRAZ to conduct a tariff review. TelOne and rival operator Econet Wireless immediately hiked their prices after the POTRAZ announcement, with Econet's voice call rates rising from ZWD10.01 (USD0.027) per minute to ZWD16.11. Meanwhile, the cost of TelOne's 10GB data bundle has increased from ZWD1,499 a month to ZWD2,413. Other local providers are expected to introduce similar tariff increases.
(July 13, 2022) commsupdate.com

Edge-to-Edge Intelligence

helps businesses generate near real-time insights by connecting IoT & cloud & software-defined networking & security & what's next.

Learn more about Edge-to-Edge Intelligence℠ at
att.com/globalbusiness

AT&T Business