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SAMENA TRENDS

FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

Business Leaders & Regulators Reaffirm Support to the Creation of a Secure, Sustainable, and a Bright Digital Future for All

THIS MONTH

PRIORITY DIGITAL SERVICES & AFFORDABILITY IN DIGITAL ECOSYSTEMS

SAMENA
TRENDS

Editor-in-Chief
Bocar A. BA

Contributing Editors
Izhar Ahmad
Javaid Akhtar Malik

Knowledge Contributions
China Mobile International
Huawei
Nexign
Syniverse

Publisher
SAMENA Telecommunications Council

Subscriptions
subscriptions@samenacouncil.org

Advertising
ads@samenacouncil.org

SAMENA TRENDS
trends@samenacouncil.org
Tel: +971.4.364.2700

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Priority Digital Services & Affordability in Digital Ecosystems

In the last two months, two very important industry activities have taken place, and both have placed the need to refocus on digital development and sustainable connectivity under new light.

First, during May in Dubai, it was the SAMENA Council's Leaders' Summit 2023, where leaders of the Industry congregated from across the world, representing 30-plus countries, in pursuit of paradigm shifts in how business leaders, policymakers and regulators should engage with each other, especially who have varying missions and agendas, but who also share common goals in achieving universal connectivity, developing future ICT infrastructure, and who are committed to making cyberspace secure and trust-driven.

Three key terms in this year's theme of the Leaders' Summit 2023 were of particular significance, with each term relating to a unique set of challenges of varying degree, inclusive of the need to achieve benefit for all, be fully representative of every stakeholder group's interests and needs, and still remaining objective and inclusive enough to foster and facilitate a forward momentum on progress: "sustainable connectivity" (which implied we need to focus on investment, enabling environment, digital trust-building, unlocking new capital); "emerging ecosystem" (which meant how diversity is growing in the digital realm, with innovations and new visions and digital players emerging), and "digital economy" (which is reflective of a new age of human endeavor).

With regional governments already on the way to setting new milestones and aspirations of seeing a newer version of themselves, such as those portrayed in the "We The UAE 2031" vision, and while the Industry itself prepares for another wave of evolution in technology (for example, from 5G to 5.5G and beyond), it is no coincidence that more reasons now exist for stakeholders from the government, private sector, and the civil society circles, to be more committed to progress-making on all three fronts described above. It truly is a time for each stakeholder group to reaffirm support and collaboration with the other.

Fortunately, in June, the Global Symposium for Regulators (GSR-23) held in Sharm El Sheikh, helped reiterate such an affirmation. Multi-stakeholder discussions led by SAMENA Council during the IAGDI-CRO meeting during the GSR-23 helped reaffirm the private sector's commitment to supporting governments, particularly regulators, during today's volatile and ever-changing environment. Moreover, The Best Practice Guidelines adopted at the GSR-23 have underpinned how new regulatory and economic incentives to stimulate the deployment of digital infrastructure for all people everywhere are critical, and need to be materialized to fulfill sustainable connectivity requirements, foster sustainability in the emerging ecosystem, and to develop a thriving digital economy.

Leaders who have contributed extensively on these fronts and have helped voice imperatives and needs over the last two months, are to be thanked tremendously. We now have a far better understanding of the evolution and the expansion of the digital ecosystems, the complex value-chains that are emerging, the shifts and transformation taking place in the overall digital service landscape of the region, and how new collaboration imperatives are being identified. It is thus essential to be upfront about real requirements of where we need to be and how the Private Sector, the Policymakers, the Regulators, Global Industry Bodies, and relevant stakeholders can better unite in building an enabling, predictable, secure, and sustainable environment suitable for all stakeholders and supports our long-term vision of ensuring and preserving sustainability in investments, value-creation, meeting grand challenges such as device affordability, and accelerating growth propelled by digitalization.

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

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SAMENA COUNCIL ACTIVITY

SAMENA Council Contributes Strongly during GSR-23 to Affirm Support for Regulators; Regulatory Leaders Agree on a Set of New Guidelines for an Inclusive and Sustainable Digital Future for All

The International Telecommunication Union's Global Symposium for Regulators (GSR-23) in Sharm el-Sheikh, Egypt, GSR-23, was held earlier in June under the theme "Regulation for a sustainable digital future", and featured thematic sessions bringing together regulators, policy makers and other digital stakeholders from around the world and providing a global platform for knowledge exchange.

At the three-day event, participants discussed the topics facing regulators today while also planning for the future.

> *These discussions were reflected in an Outcome Statement presented at the GSR-23 closing ceremony by Bocar BA, IAGDI-CRO Chairman and CEO of SAMENA Telecommunications Council. The meeting reaffirmed the private sector's commitment to supporting governments, particularly regulators...*

"Dialogue among policy-makers, regulators and industry is critical," said Cosmas Zavazava, Director of ITU's Telecommunication Development Bureau. "We each have a role to play in ensuring universal and meaningful connectivity, which, as we already know, has the potential to accelerate the achievement of the Sustainable Development Goals by 2030. The Best Practice Guidelines build on our collective knowledge and shared commitment to provide the tools we need to drive universal connectivity and sustainable digital transformation."

Ahead of GSR-23, the Industry Advisory Group on Development Issues and Chief Regulatory Officers (IAGDI-CRO) engaged

industry and private sector members to discuss and share perspectives on how they can contribute to achieving effective digital transformation. These discussions were reflected in an Outcome Statement presented at the GSR-23 closing ceremony by Bocar BA, IAGDI-CRO Chairman and CEO of SAMENA Telecommunications Council. The meeting reaffirmed the private sector's commitment to supporting governments, particularly regulators, during today's volatile and ever-changing environment, to achieve common goals both in the near and long term.

CEO of SAMENA Council, prior to the GSR-23 had acknowledged that "Regulation is what keeps things in flow, and when done right, ensures predictability, stability, and aids informed decision-making and innovation. With well-crafted regulations, we can ensure that digital technology is used to bring benefit to the public, not exploit it, and to help support the creation of a secure, sustainable, and a bright digital future for both businesses and the society, at large. Moreover, good regulation would help set incentives, sustain investments, and would guarantee level-playing field for businesses and varied choices for the end-user. The values we want to promote, such as safety, privacy, and security, all require regulations. Thus, the role of regulatory authorities is tremendous, and it requires to be tremendously driven by an industry-enablement mindset that supports digital infrastructure development for all people." The Best Practice Guidelines adopted at the GSR-23 International Telecommunication Union's Global Symposium for Regulators (GSR-23) in Sharm el-Sheikh, Egypt, define regulatory and economic incentives to stimulate the deployment of digital infrastructure for all people everywhere. Since 2003, the GSR Best Practice Guidelines have captured established regulatory principles for a competitive, safe, and inclusive enabling environment.

> *"Regulation is what keeps things in flow, and when done right, ensures predictability, stability, and aids informed decision-making and innovation. With well-crafted regulations, we can ensure that digital technology is used to bring benefit to the public, not exploit it, and to help support the creation of a secure, sustainable, and a bright digital future for both businesses and the society, at large. Moreover, good regulation would help set incentives, sustain investments, and would guarantee level-playing field for businesses and varied choices for the end-user. The values we want to promote, such as safety, privacy, and security, all require regulations. Thus, the role of regulatory authorities is tremendous, and it requires to be tremendously driven by an industry-enablement mindset that supports digital infrastructure development for all people."*
>
> ***Bocar A. BA, CEO & Board Member***
>
> ***SAMENA Telecommunications Council***

The 2023 Guidelines address and identify incentives that can be used to expand connectivity, and support access, adoption, and use. They also identify novel, innovative, ground-breaking, evidence-based cross-sector digital policy and regulatory principles to support a sustainable digital future for all people everywhere.

Based on contributions from national and regional policy-makers and regulators, regional and international organizations, civil society and the private sector, the guidelines identify collaborative approaches to encourage the development of investor-friendly markets that promote competition while stimulating innovation.

Stakeholders during the GSR-23 collectively contributed, identified, and endorsed regulatory best practice guidelines to continue moving toward an inclusive and sustainable digital future. Recalling the series of GSR Best Practice Guidelines since 2003 that capture established regulatory principles for a competitive, safe and inclusive enabling environment, our focus here is on novel, innovative, ground-breaking evidence-based approaches and tools to support a meaningful and sustainable digital future for all people everywhere.

Incentives towards achieving meaningful connectivity

Digital technologies have connected people and businesses across different countries, creating new opportunities and driving inclusive and sustainable growth. However, the digital divide remains a significant challenge, especially in rural, unserved and underserved areas everywhere.

• Market access: Policy makers and regulators are encouraged to ensure a competitive environment in all layers of the digital ecosystem by providing incentives for incumbents, new entrants, and startups that bring new solutions and technologies to the market to meet national connectivity goals. This could include establishing safe spaces for experimentation and innovation such as sandboxes and testbeds. • Universal access and service: Policy makers and regulators could consider incentives for network deployment in rural, unserved and underserved areas that may include subsidies, grants, low-interest loans, loan guarantees, reducing regulatory fees, introducing fee exemptions (e.g., customs waivers on import duties) or giving tax breaks for investors or tax holidays for market players after reaching certain investment thresholds in these areas. • Universal service funding: Policy makers and regulators can employ Universal Service financing mechanisms to address the needs of rural, unserved and underserved areas and populations in vulnerable situations. • Balancing fiscal policies: Policy makers and regulators could consider broadening the base of contributors taking into consideration the characteristics of markets and new developments. • Innovative regulatory last mile connectivity solutions: Policy makers and regulators are encouraged to consider facilitating last mile solutions to connect the unconnected, through means such as municipal, community and mesh networks and social enterprises, as well as spectrum and infrastructure sharing and co-investment to extend networks and services to unserved and underserved areas. • Research & development (R&D): Policy makers and regulators may consider providing financial or fiscal incentives to support research and development in emerging digital technologies, open technology innovation and innovative business models according to the priorities of the population. • Spectrum reform: Policy makers and regulators could take steps to make sufficient spectrum available to support rapid deployment of next generation services, innovation and investment in terrestrial and satellite infrastructure and spectrum-based services. Unlicensed spectrum use, spectrum refarming and redeployment, could be part of the regulatory tools employed to facilitate deployment in rural, unserved and underserved areas. Green digital transformation: Policy makers and regulators could consider eco-friendly financial and regulatory incentives such as tax reductions or holidays for companies that adopt sustainable business practices, such as using renewable energy sources in network operation and deployment.

Incentives to support access, adoption and use

Policy makers and regulators are encouraged to implement regulatory and financial incentives to support access, adoption and use to bring the benefits of meaningful connectivity to everyone, everywhere.

• Demand-side interventions: Policy makers and regulators could introduce demand-side interventions as part of universal service policies or other mechanisms (partnerships between public, private and non-governmental actors) to promote literacy and advanced digital skills and foster the development and adoption of relevant and local content and solutions to enhance local livelihood and business opportunities. • Digital skills and educational programmes: Policy makers and regulators can play an important role in facilitating educational and a wide range of digital skill programmes in schools especially for young generation as well as, training for the elderly, including rural, unserved and underserved areas, and populations in vulnerable situations to fully harness opportunities brought about by digital transformation. • Lowering barriers to access digital devices and equipment: Policy makers and regulators could consider measures to encourage and facilitate cost reduction in the manufacturing, purchase and importation of hardware equipment and devices to achieve universal service goals, in particular for open-source hardware, and for green technologies. • Incentives for digital services and device adoption: Policy makers and regulators could consider introducing incentives for the provision of affordable digital services and devices at special rates for local communities and lowincome population.

Cross-sector digital policy and regulatory principles

Policy makers and regulators each play key and complementary roles in their autonomy by engaging with all stakeholders to identify the changes and levers that are needed to take national, regional and global digital transformation readiness to the next level. Regulatory coordination in the digital landscape: The coherence and mutual reinforcement of rules and the proactive coordination between adjacent regulatory regimes is key to a resilient, consistent and enabling digital policy and regulatory environment. Policy makers and regulators could reinforce legal and institutional frameworks for collaboration that outline the processes, mechanisms and tools to be used across sectors and parts of government. • Inclusive decision-making cycles: Policy makers and regulators should foster regular dialogue across government authorities, sectors and stakeholder groups to ensure that stakeholders are engaged on key developments in digital markets while identifying areas of concern and shaping targeted policy alternatives, for example through public consultations, stakeholder forums or collaboration networks and platforms, to ensure that all people have access and benefit from the digital transformation. • Data and benchmarks: Regulators need the resources and capacity to collect relevant data to support their decisions in an open and transparent manner and to establish metrics and benchmarks to measure regulatory compliance and progress towards achieving connectivity targets and policy goals. This evidence collected helps inform and more appropriately target regulatory interventions, thus enhancing the effectiveness of regulation. • Research and foresight capacity: Regulators increasingly need internal research capacity and resources to explore and anticipate market trends, regulatory challenges, and the impact of new technologies on markets and consumers. Strategic research and foresight are important to inform regulatory discussions and decisions in a timely and systematic manner, enabling proactive, proportionate, and targeted regulatory action. • Alignment with international standards: Policy makers and regulators can consider aligning their policies, regulations and national standards with relevant international standards and guidelines to promote, where appropriate and to the extent possible, the harmonization of regulatory regimes in key areas enabling digital transformation to enable coordinated response to cross-border issues. 5-8 June 2023 | Sharm El-Sheikh, Egypt 4 www.itu.int/gsr23 • Regional and international collaboration and representation: Regulators should continue working together leveraging regulatory association (RA) networks at regional and international level to accelerate digital transformation for a sustainable digital future including, where appropriate, through developing common approaches to collaborative digital policy and regulation across economic sectors and across borders.

LEADERS' SUMMIT 2023

SAMENA Council Leaders' Summit 2023 Highlights the Evolution of Mobile Technologies and Showcases Major Imperatives for Ensuring Sustainable Connectivity as a Foundation for a Trust-driven Digital Economy

SAMENA Telecommunications Council's annual Leaders' Summit of global and regional leaders, bringing market and government-sector representation from multiple continents, was held in Dubai on May 15th with the overall patronage of TDRA-UAE, partnership from the UAE Cyber Security Council for the event and the ITU. SAMENA Council Leaders' Summit 2023 had the leading collaboration of MOBILY, YANDEX, HUAWEI, strategic support from stc Group and Zain Group, as well as members' ecosystem support of Avaya.

Held under the theme "Sustainable Connectivity and Emerging Ecosystems in Digital Economy," the Leaders' Summit at Atlantis – The Palm, Dubai welcomed renowned regional and global private-sector players to delve into discussions centered on ICT Infrastructure Requirements in Emerging Markets, SA-ME-NA Digital Services Landscape & New Digital Enablers; Multi-Dimensional Approaches in Cybersecurity; Evolution of 5G Digital Technologies, Future Mobile and Metaverse based Life and Business, a need for New Frequency Allocations for Telecom Operators, Non-Terrestrial Network Integration, and overall Value-Creation, among other important subject areas.

Welcoming leaders of the Industry to the Leaders' Summit 2023, a by-invitation-only industry leadership meeting in the region, Bocar BA, CEO & Board Member of SAMENA Council, stated: "This year's Summit has attracted exceptional participation of stakeholders and privileged patronage and participation from UAE government bodies, including TDRA-UAE, as well as collaboration from the

"In the UAE, we share the aspiration of having a digital world that is sustainable, secure and meeting present and future needs, committed to satisfying best international standards and ready to promote community engagement and support in all countries around the world."

- HE Sheikh Nahyan Mubarak Al Nahyan
Minister of Tolerance and Coexistence, UAE

industry's leading regional and international ICT bodies, including the ITU, GSMA, GCC governments, the United Nations Broadband Commission, Telecom Operators, particularly Mobily, Digital Platforms, and leading Technology Providers, such as Huawei. We anticipate achieving new milestones in industry collaboration and multi-stakeholder cooperation-building in pursuit of advocacy on behalf of the Industry."

Mobily CEO, Eng. Salman Al Badran, who is also a Board Member of the SAMENA Council, stated: "Mobily is pleased to express its commitment to accelerating digital development and socio-economic progress in the region. As a major regional digital ecosystem player, having invested in the latest mobile technologies and being aware of the opportunities and challenges ahead, we strongly believe that sustainable connectivity and

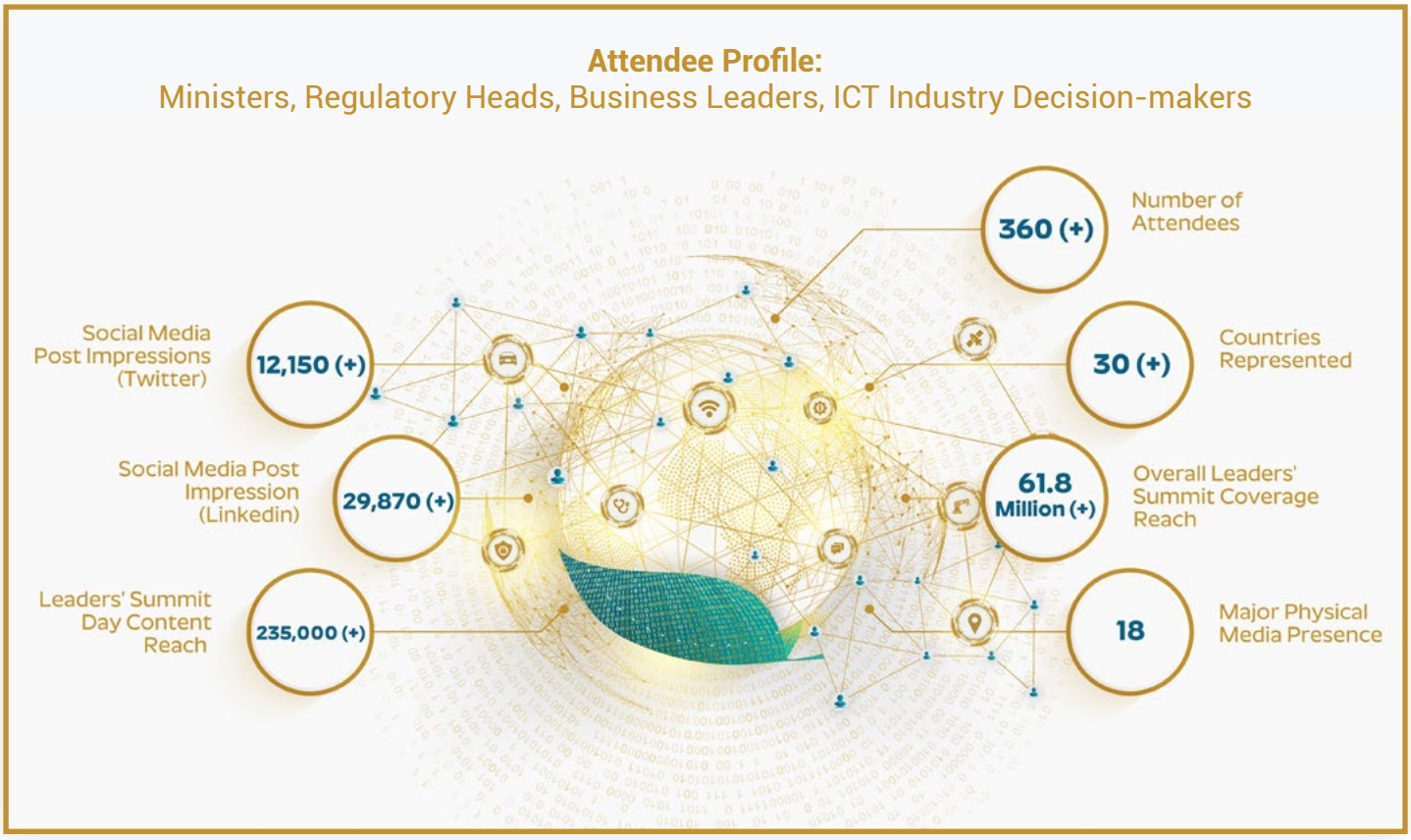
"Governments have a role to play in digital entrepreneurship such as helping to ensure capital to start-ups. Ghana's government is exploring new public-private partnerships that support sharing of infrastructure, with the aim to connect 4-5 million currently unconnected citizen."

- HE Mrs. Ursula Owusu-Ekuful
Minister for Communications and Digitalisation, Republic of Ghana

continued innovation are a requirement that we all must strive together to achieve. Dialogue continuously being enabled by SAMENA Council in the shape of Leaders' Summit, serves as a great medium of support to Operators' objectives."

Huawei's President of the Middle East & Central Asia, Steven Yi, stated: "We are stepping into the 5.5G era where all things are connected through intelligence, the value of connectivity is being unleashed, and the digital economy is booming. While increasing connectivity and digital innovation – as the foundation for digital transformation – will bring social-economic benefits to the region, new cybersecurity challenges will arise. Huawei calls for broad collaboration between all stakeholders to address the challenges and safeguard their digital future, as it is a shared responsibility that cannot be addressed by one person, organization or nation alone."

> *"We need to follow certain guiding standards and policies, in addition to simple measures which we can do in our daily life in order to protect ourselves, our loved ones, and our important financial transactions, as well as to enhance the efficiency and quality of services. We hope that everyone will participate and cooperate in disseminating the culture of cybersecurity. Cybersecurity is critically important and it depends on telecom companies and telecom regulators, and even on the ordinary users. Participation can include simple cybersecurity measures that we use in our daily life. We understand that cybersecurity cannot be achieved without the cooperation of everyone."*
>
> **- HE Dr. Mohamed Al Kuwaiti**
> Head, Cyber Security Council, UAE



"The ICT sector and, in particular, the 5.5G technological innovation that features full-scene IoT, L4 autonomous driving network, and green ICT will play a vital role in tackling sustainability needs of the Telecom industry and its contributions to other industries. Huawei is committed to innovation, and will actively work with industry and ecosystem partners to share its best practices to continuously drive the digital economy forward, and help telecom carriers and enterprises accelerate their digital transformation. We value the need to collaborate to achieve the region's digital requirements that can speed up the arrival of an intelligent and sustainable future and SAMENA Council Leaders' Summit 2023 is a platform, which supports stakeholders to adjusting to innovative realities and achieving sustainable digital development", Yi added.

> *"Trust is to meet and exceed user's expectation. TDRA established cybersecurity unit in 2008, to secure the digital environment for every users. It also developed new initiatives to lead to a trust from end-users. It's like a coin has two side, one side is the users, and the other side is the government, the digital service provider, and the telecom and vendors... All these different roles needs to be responsibly carried out, with good governance, policies, procedures and good technology use."*
>
> **- Eng. Adel Rashed Almehairi**
> Director, aeCERT

Notable Developments during the Leaders' Summit 2023

- During the SAMENA Council Leaders' Summit 2023, the WSIS panel explored how to maximize the potential that accelerated digital transformation can bring to emerging markets as well as how best to foster and entrench multi-stakeholder digital trust. Best experiences and practices were shared, to identify actions that could be undertaken to build trust and best realize the use of ICTs for a sustainable, connected, intelligent future for all.
- At the Leaders' Summit 2023, led by the UAE Telecommunications and Digital Government Regulatory Authority, Etisalat UAE by e&, Du Telecom, INFRAX, Quanray, HTC, Lierda Science and Technology Group Co. Ltd, and Huawei jointly launched the 5.5G OpenLab. The lab is dedicated to building a 5.5G ecosystem alliance, testing ecosystem interoperability, and developing advanced use cases for consumers, homes, and industry sectors.
- During the Summit, the cybersecurity-focused discussion drew attention to lack of diversity in the cybersecurity workforce as being a pressing issue, with women representing only 24% of the global cybersecurity workforce. To address the talent shortage, organizations need to take a multi-faceted approach. This includes increasing investments in cybersecurity education and training programs, creating new pathways into the cybersecurity profession, promoting diversity and inclusion in the workforce, and adopting new technologies and practices that can help automate some of the routine tasks currently performed by cybersecurity professionals.
- The SAMENA Council Leaders' Summit 2023 also brought together stakeholders to discuss IMT spectrum in new light. Given the rate of 5G expansion, with the next 5 years expected to see GCC achieve 85% penetration rate, consequential 5G traffic will rise exponentially, further contributing to data pressures on mobile networks. Having undergone testing, 6GHz spectrum has proven to provide suitable coverage, comparable to C band, and to enable contiguous deployment, thus dramatically ensuring better mobility. Moreover, due to coverage and capacity balance achievable through 6GHz, sustainability and carbon neutrality imperatives also appear to be more achievable with this frequency range if dedicated fully for IMT use. Given this rationale, 6GHz for public mobile network use cannot only accelerate digital transformation across urban and far-flung areas, it can improve ROI on 5G investments and thus enable more capital flow in meeting the overarching goal of universal connectivity. It would be more practical to reserve 6GHz for IMT use instead of allocating it to Wi-Fi use. It is critical that regional decision-makers take at least preliminary decisions on this front in the wake of WRC-23.

Since 2018, the SAMENA Council's Leaders' Summit has been focused on 5G, which has catalyzed positive impact on 5G planning and development in the region, empowered cross-industry participation, as well as supported policy and regulatory consideration. The Summit has provided the SA-ME-NA region's stakeholders visibility on what to expect and prepare for in the new Digital Age. In 2023, the Council aims to address evolution of 5G digital technologies and 5.5G ecosystem development requirements, building 21st century financial and telecom synergies, enabling digital competence and boost to the region's digital economy, and supporting constructive enablement of a secure Cyberspace.

> *"National Digital Transformation had supported Saudi Arabia during the pandemic, and stc was a key ICT enabler in it. Digital trust should be part of product development lifecycle. Collaborations within Organizations and with standards bodies will be an enabler to advance capabilities in that domain."*
>
> **- Eng. Haithem M. Alfaraj**
> Group Chief Technology Officer, stc Group

Key Insights from the Leaders' Summit 2023

- To help mankind stride into the 5.5G and 6G era, a high level of inclusiveness is required.
- Many countries have already adopted 5G in mass and invested in research and development for the even faster 5.5G or the 6G concept, yet globally and in SA-MENA, there is still discrepancy in technology development. Some countries do not even have 4G.
- In a sustainable digital future, the enhanced mobile broadband (eMBB) will empower high-quality video streaming, virtual reality (VR), augmented reality (AR), and immersive gaming on their mobile devices.
- In Industry 4.0, mankind expects to the integration of robotics, automation, artificial intelligence (AI) into our daily life. Lastly, a unified security and privacy measure is the key to safeguard the hard-earned digital development.
- As technology continues to evolve, 5.5G is expected to drive innovations and economic growth, transforming the way we live, work, and interact with the digital world.
- Private sector, policymakers, and relevant stakeholders need to work together to achieve sustainable growth in the digital realm, which has a direct impact on both national as well as regional socio-economic dynamics.
- Digital transformation tightly aligns with ITU's mission and ITU supports the least developed countries, some of which are connected in the SAMENA region.
- It is important to connect the hardest-to-reach communities. Digital technology can accelerate the progress to reach each goal within the UN Sustainable Development Goals (SDGs).
- Digital economy is contributing to 15% of global (technology) growth. It is expected to create 30% the global GDP soon. Digital infrastructure, emerging technology, cyber security, regulatory interaction, etc. are instrumental in securing a united future.
- There are excessive pressures on telecom companies, which slows down digital inclusivity. 92% global users access internet via mobile

broadband, which requires tremendous investments and which is a good reason for strong commitment to digital empowerment.

- The Least Developed Countries (LDCs) suffer from lack of digital infrastructure. Particularly, the people in the rural area with linguistics barriers and women are left far behind. By 2030, $136 billion investment will be needed, most of which has to come from private sector.
- ICT can enable the growth of a more intelligent and greener world. Give that from 2020 to 2030, connectivity density and computing power have increased multifold, it is important to realize that true, sustainable future can only be green future.
- As companies increasingly use more efficient, AI-enabled tools, a more innovative, transparent, and prospering digital environment is coming in the future.
- Since Gigabit broadband has become mainstream among consumers in advanced broadband markets, the number of connected households with speeds of 1Gbps will nearly triple in the coming two years.
- Government funding is being used to take fibre coverage to close to 100% in many developed markets.
- Digital connectivity helps strengthen human relationships across the globe, yet not all users can afford or use complicated VR equipment. Digital solutions need to focus on creating experiences on simple devices, which would drive true inclusion.
- In terms of digital service provisioning and new digital experiences, improving search interfaces is essential. Despite fast growth of AI, search engine is still among the most efficient in digital tools.

Broadband Commissioners at the SAMENA Council Leaders' Summit 2023 Discuss Important Industry Matters in Support of Agile, Enabling Digital Environment

The 2023 SAMENA Council Leaders' Summit, led by CEO of the SAMENA Telecommunications Council and Broadband Commissioner Mr. Bocar BA, and co-hosted by Director General of TDRA and Broadband Commissioner, H.E Engr. Majed Sultan Al Mesmar, provided an opportunity for cross-industry stakeholders to address challenges faced in the industry and seek collaborative solutions for addressing them. The Summit focused on topics such as cybersecurity, 5G digital technologies, and the SA-ME-NA digital services landscape.

Broadband Commission Co-Vice Chair, and ITU Secretary General, Ms. Doreen Bogdan-Martin delivered opening remarks to the Summit, and chaired the Commissioners' meeting during the Leaders' Summit, attended by several Broadband Commissioners, including invited guests from the financial services domain.

With due respect to Chatham House Rule of information sharing applicable to the meeting, the participating Commissioners and invited guests exchanged some key insights and emphasized on certain elements, in representation of the Industry's need for greater cooperation-building.

TDRA Participates in SAMENA Council Leaders' Summit on the Role of Telecommunications in Supporting the Digital Economy

With the active participation and sponsorship of the Telecommunications and Digital Government Regulatory Authority (TDRA), SAMENA held its annual summit at the Atlantis Hotel in Dubai, in the presence of H.E. Sheikh Nahyan bin Mubarak Al Nahyan, Minister of Tolerance and Coexistence in the United Arab Emirates as a guest of honor at the summit, and with the participation of a group of decision-makers and workers in the field of ICT in the public and private sectors in the Middle East and North Africa region.

His Excellency Eng. Majed Sultan Al Mesmar, TDRA Director General, gave the opening speech in which he highlighted the importance of regional cooperation to advance the telecommunications sector and digital transformation in order to contribute to creating the future and promoting a sustainable digital economy to serve the region. He said: "Advanced digital ecosystems have proven to have an effective impact on society, economy and government work. Today, emerging technologies constitute a strong drive for the transformation process towards a sustainable digital economy, whether in the UAE or in the region and the world. However, this journey has some challenges that we must work together to overcome and turn into opportunities and prospects. One of these challenges is the legislative issue, as technologies are constantly evolving, and in order to keep pace with them legislatively, we must be highly innovative. Thus, TDRA was keen to launch the first experimental legislative environment for the ICT sector (ICT Regulatory Sandbox), on the sidelines of the World Government Summit that was held in Dubai last February."

H.E Al-Mesmar called for concerted efforts to support countries that are not connected to submarine cables, which deprives them of broadband Internet services, and offered the UAE's assistance in this context based on the UAE's global trends, and said: "The UAE is ready to provide the necessary advisory and technical support to those countries.", in order to achieve the noble global slogan raised by the United Nations in the context of its development goals, (Leave no one behind)."

"Advanced digital ecosystems have proven to have an effective impact on society, economy and government work. Today, emerging technologies constitute a strong drive for the transformation process towards a sustainable digital economy, whether in the UAE or in the region and the world. However, this journey has some challenges that we must work together to overcome and turn into opportunities and prospects. One of these challenges is the legislative issue, as technologies are constantly evolving, and in order to keep pace with them legislatively, we must be highly innovative. Thus, TDRA was keen to launch the first experimental legislative environment for the ICT sector (ICT Regulatory Sandbox), on the sidelines of the World Government Summit that was held in Dubai last February."

HE Eng. Majed Sultan Al Mesmar, TDRA Director General

His Excellency Mohammed Al Ramsi, Deputy Director General for the Telecommunications Sector, participated in the activities of 5.5G session. Al Ramsi presented TDRA's efforts to enhance the infrastructure of 5G and 5.5G, and the role of this technology in promoting innovation and increasing the speed of communication between devices and stations, which support the establishment and development of smart cities in their various fields such as education, health, transport, logistics, industry and others. Al Ramsi indicated that TDRA has taken many necessary steps to facilitate the development of 5.5G, including the allocation of spectrum at 6GHz and mmWave scales.

Among TDRA's participants in the summit sessions, Adel Al Mehairi, Director of CERT, participated in a discussion session on enhancing digital trust to reach a sustainable, connected and smart world. Khalid Al Awadi, Manager of Broadcasting and Space Services, also participated in a session on the integration of terrestrial and non-terrestrial networks and space platforms. TDRA also had an active participation in the discussion session "Creating Digital Value and the Internet", where Sultan Albalooshi, Manager of Spectrum Policy, touched on the importance of infrastructure in enhancing the role of the Internet in digital life and the digital economy.

On the sidelines of the summit, TDRA participated in the collective launch of the 5.5G open lab, in partnership with Etisalat by e& and Huawei. This launch reflects the stakeholders' keenness on the principle of partnership in preparing for the future and dealing smartly with new technologies.

WSIS Seminar during the SAMENA Council Leaders' Summit 2023 Urges For ICT Collaboration and Cybersecurity Common Standards, For Enhancing Digital Trust as a Shared Responsibility

The World Summit on the Information Society (WSIS) seminar titled "Enhance Digital Trust for a Sustainable, Connected, Intelligent World", sponsored by Huawei and held during the SAMENA Council Leaders' Summit 2023, concluded that digital transformation will only realize its potential social and economic benefits if responsibilities are shared by different stakeholders with specific roles. The seminar explored the opportunities and challenges posed by ICT and digital transformation. Leaders from the Arab ICT Organisation, GSMA, Huawei, International Telecommunications Union (ITU), UAE Government, the UAE Computer Emergency Response, Mobily and stc Group called for multi-stakeholder collaboration including governments, policymakers, industry associations, academia, corporations and civil society to play their part to support ICT development.

During the opening ceremony of the SAMENA Council Leaders' Summit 2023, His Excellency Sheikh Nahayan Mabarak Al Nahyan, UAE Cabinet Member and Minister for Tolerance and Coexistence called for responsibility within the ICT industry as the industry develops and said: "In UAE, we share the aspiration of having a digital world that is sustainable, secure and meets present and future needs, committed to satisfying best international standards and ready to promote community engagement and support in all countries around the world."

> *Leaders from the Arab ICT Organisation, GSMA, Huawei, International Telecommunications Union (ITU), UAE Government, the UAE Computer Emergency Response, Mobily and stc Group called for multi-stakeholder collaboration including governments, policymakers, industry associations, academia, corporations and civil society to play their part to support ICT development.*

In his keynote address to the WSIS Seminar, Mr. Adel Mohamed Darwish, Director, ITU Regional Office for the Arab States stated: "Digital trust and confidence in the use of new ICT is crucial and a multi stakeholder effort. No single entity can address the range of challenges on their own. This includes adopting national cybersecurity strategies, establishing national incident response readiness and responsibility, and developing international security standards."

Security and trust are crucial to ensuring online access and trusted exchanges of data and information. However, with digitalization comes new cybersecurity challenges. During the seminar, a panel of industry leaders discussed how supportive policies are important to encourage development in areas that may seem less attractive to carriers such as remote area infrastructure as well as the need to set a cybersecurity baseline with common standards to secure digital transformation. There was consensus that approaches to building digital trust should be fact-based and that the best way to achieve this is through verifiable, common standards. Panelists included Dr. Azzouz, Senior Expert in ICT Industry; Mr. Jawad Jalal Abbassi, Head of Middle East & North Africa, GSMA; Eng. Mohamed Ben Amor, AICTO Director General; Mr. Adel Al Mehairi, Director, UAE Computer Emergency Response Team (aeCERT); Eng. Alaa A. Malki, CTO, Mobily, and Eng. Haithem M. Alfaraj, Group Chief of

> *"Digital trust and confidence in the use of new ICT are crucial and require multi-stake-holder efforts. No single entity can address the range of challenges on their own. This includes adopting national cybersecurity strategies, establishing national incident and responsibility, and developing international security standards."*
>
> **- Mr. Adel Mohamed Darwish**
> Director, ITU Regional Office for Arab States, Egypt

Technology Officer, stc Group.

Mr. Jawad Jalal Abbassi, Head of Middle East & North Africa, GSMA highlighted the core issue saying "A major challenge remains in the usage gap that 400 million people around the world still not near enough to a mobile network. There are 3.2 billion people who are able to connect to a mobile network, but still not using the internet. Imagine the economic and social benefits of enrolling 4.2 billion people in using digital technology, which is the biggest impetus to tackle the issue."

Eng. Mohamed Ben Amor, AICTO Director General responded that "ICT development needs good policies, especially for less developed countries." Dr. El-Sayed Azzouz, Senior Consultant in ICT Industry shared "The key recommendation for ICT and digital trust building is to have official intervention to boost collaboration, investment, education and plus common standards for cybersecurity, which gives the ecosystem a clear baseline to follow." Eng. Adel Rashed Almehairi, Director of aeCERT at TDRA summed up digital trust by saying "It's like a coin has two sides, one side is the users, and the other side is the government, the digital service providers, and the telecom operators and ICT vendors. All these different entities need to collaborate and share responsibility to develop governance protocols, policies, procedures that can guide responsible use of technology."

In her remarks, Ms. Nora Cao, Vice President of Global Government Affairs, Huawei Technologies Co., Ltd proposed an approach for overcoming the challenges faced by governments and private-sector stakeholders called the 'AIDE framework' which covers Access, Innovation, Development and Environment to promote digital inclusion, skills and create sustainable growth.

The WSIS "Enhance Digital Trust for a Sustainable, Connected, Intelligent World" seminar, which was sponsored by Huawei, concluded that digital multi-stakeholder collaboration is essential in order have a structure that creates an open and transparent environment for the sustainable development of ICT and connectivity.

> *"A major challenge remains in the usage gap that 400 million people around the world still not near enough to a mobile network. There are 3.2 billion people who are able to connect to a mobile network, but still not using the internet. Imagine the economic and social benefits of enrolling 4.2 billion people in using digital technology, which is the biggest impetus to tackle the issue."*
>
> ***Mr. Jawad Jalal Abbassi, Head of MENA, GSMA***

Huawei MECA President at SAMENA Council Leaders' Summit 2023 Stresses that Thriving Digital Economy Depends on Sustainable Connectivity and a Large Pool of Skilled Local Talent

In his opening keynote at the SAMENA Leaders' Summit, where the leading telecom and ICT leaders in the region gathered, Steven Yi, President of Huawei Middle East and Central Asia, addressed the audience with futuristic but also pragmatic ICT industry viewpoint, reflecting on the company sustainable approach – Thriving Digital Economy Depends on Sustainable Connectivity. He reiterated that the Gulf countries continue to lead the global 5G deployment and commercialization and offer a fertile environment for the development of 5.5G.

Steven said: "It is widely acknowledged that the digital economy plays a pivotal role in driving global economic growth. AI as the key technology, will help to build an intelligent world and boost digital economic progress. The rapid rise of AI technology has significantly increased computing power demand. To train and increase accuracy, AI systems need large volumes of data, which must be transmitted rapidly, processed efficiently, and stored safely."

It is estimated that by 2030, the thriving digital economy could be worth 30 trillion dollars. Huawei believes that sustainable digital economic growth will be based on three powers, the transmission power that can support over 200 billion global connections, the computing power that can meet 500 times increased AI computing demands, and the storage power that can store an impressive 1 Yottabyte (a quadrillion Gigabytes) of data yearly. He stressed that building these three powers involves continuous investment in connectivity infrastructure, green deployment and local digital talents.

"Today's connected world demands network connectivity investment. These networks are essential in connecting people with people, people with things, things with things, and transmitting data rapidly and accurately. Advanced connectivity infrastructure can bridge the digital divide and unlock digital economy benefits," Steven added.

He highlighted that 5G is a prime example of a connectivity technology that can deliver significant social, industrial, economic, and sustainability benefits. There are already 17 commercial 5G networks within the Middle East region, and coverage reaches 45 million population. He stressed that while GCC countries led the global 5G deployment wave, it is essential to continue evolving connectivity infrastructure, adopting the latest technologies in the 5.5G era, enabling 10Giga bits per second speed everywhere, supporting all scenario IoT, and integrating sensing communication. Continuous evolution to the 5.5G era is the way to ensure that the infrastructure will meet demands for a more immersive experience and unleash the potential powers for sustainable digital economic growth.

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>
> ***Steven Yi, President of Huawei Middle East and Central Asia***

> *"A sustainable digital economy will require more than connectivity. Green ICT solutions must also be prioritized. We must consider the environmental impact as we embrace technology and extend digital networks. We can protect the environment and preserve the digital economy by incorporating eco-friendly and energy-efficient ICT infrastructure. Furthermore, ICT will also boost industry-wide green practices."*

He highlighted that 5G/5.5G as the crucial ICT connectivity technology can create tangible values toward a digital economy represented in many key outcomes such as reaching the top rate in internet access for more social benefits, contributing to GDP, driving better economic growth and adding new potentials to sustainability approach and energy saving through 5G networks.
"A sustainable digital economy will require more than connectivity. Green ICT solutions must also be prioritized. We must consider the environmental impact as we embrace technology and extend digital networks. We can protect the environment and preserve the digital economy by incorporating eco-friendly and energy-efficient ICT infrastructure. Furthermore, ICT will also boost industry-wide green practices," Steven added. It is estimated that adapting ICT-enabled digital solutions will help reduce 20% of global carbon emissions by 2030.

He further elaborated that a sustainable digital economy demands a large pool of local talents that is proficient in the latest technologies and able to adapt to new developments quickly. Governments and businesses must continue to invest in training and education programs to ensure that workers have the skills they need to succeed in the digital economy, he explained.

Huawei has a long and proud history of collaboration with governments, academia and industry to enrich the region's ICT talent ecosystem. CSR initiatives such as Seeds for the Future, the annual Huawei ICT Competition, Huawei ICT Academy, joint innovation centers, labs and other CSR initiatives empower thousands of Arab youth annually to supercharge their ICT careers. In the Middle East, Huawei has set up 186 Huawei ICT Academies, and more than 4,000 students have participated in the flagship program Seeds for the Future, while over 57,000 people have obtained Huawei certification. We also have trained over 150,000 ICT talents for the Middle East and are committed to achieving more in collaboration with our partners.

"Over the last decades, we have put a lot of effort into creating social values for each country by creating hundreds and thousands of job opportunities for the local people, actively working with local partners, and cultivating over 100,000 local ICT talents through our different training certification programs. We will continue working with our partners to bring pioneering new technologies to the region that will enrich people's lives with immersive digital services and enable smart solutions to accelerate the industry's digital transformation and related social value," said Steven.

Huawei's training and certification programs serve as a major source of high-quality talent for industry digitalization. By the end of 2022, the global ICT leader had established Huawei ICT Academies with more than 2,200 universities across the globe. Through this program, the company trains an average of more than 200,000 students each year. Furthermore, the Huawei ICT Competition provides an international platform through which university students from around the world can compete and share ideas with each other. The sixth Huawei ICT Competition, held in 2022, attracted 150,000 university students from 85 countries and regions. This month, finalists' teams from seven countries in the region will be in China to compete on a global level with their peers from other countries in Huawei Global ICT Competition. "We look forward to inspiring more interest and engagement in our ICT talent cultivation programs and initiatives in the region to support the local governments in their strategies and visions on digital transformation and ICT talent ecosystem," he added.

"In 2023, we will continue to maintain strategic focus and strengthen R&D investment. We will focus on creating greater value for our customers, partners, and society. Huawei remains open to collaboration and is always looking to join hands with outstanding researchers, developers, innovators and partners from around the world to address the biggest challenges of our times," stated Steven.

Steven described SAMENA Leaders' Summit as an enlightening and insightful conference as it focuses on crucial pillars of economic development, including sustainable connectivity, ecosystems, and the digital economy. Reiterating the importance of connectivity, he closed his keynote with a popular Chinese saying, 'If you want to get rich, build roads first'. "Building a strong connectivity infrastructure is critical to the growth of the digital economy. Just as roads and bridges are essential to the physical economy, a robust connectivity infrastructure is the foundation upon which the digital economy is built," Steven concluded.

Huawei's recent annual report demonstrated that the company continues to strengthen investment in R&D, with an annual expenditure of USD23.22 billion in 2022, representing 25.1% of the company's annual revenue and bringing its total R&D expenditure over the past 10 years to more than USD 140.55 billion.

Huawei Hosts the "5.5G Leaders' Summit" during the Main SAMENA Council Leaders' Summit 2023 in Dubai & Highlights the Importance of Green ICT for Sustainable Digital Economic Growth

Huawei Middle East & Central Asia and SAMENA Telecommunications Council jointly hosted the 5.5G Leaders' Summit at Atlantis the Palm, Dubai, UAE, with a theme "10Gbps, Striding towards the 5.5G Era", as a part of the main SAMENA Council Leaders' Summit 2023.

The 5.5G Leaders' Summit brought together ICT leaders, regulators, industry organizations, including GSMA and WBBA, vendors, enterprises, analysts, chipsets, application ecosystem partners, and other experts to share their ideas, discuss various topics on creating sustainable 5.5G connectivity, and ecosystem aggregation platforms to foster collaboration, accelerate digital economic growth.

Since the first launch of the 5G network almost four years ago, adoption has accelerated in the ME region. 5.5G is the essential upgrade for 5G, a key milestone for the increasingly integrated intelligent world, while 6G is still in early study. It will offer 100 times more business potential with a ten-times-better network experience than 5G.

H.E. Mohammed Al Ramsi, Deputy Director General, TDRA UAE, gave an opening speech at the summit: "Technologies are developing and renewing and presenting us with great challenges and greater opportunities. Providing a sound regulatory environment is crucial for embracing 5.5G's potential fully. As such, the UAE has taken several steps, including the establishment of the ICT regulatory sandbox."

"I am quite sure that this session will lead to relevant and actionable insights on how we can leverage 5.5G technology to drive sustainable development and digital innovation in the UAE and globally."

In his opening speech, Mr. Steven Yi, President of Huawei Middle East and Central Asia, said: "Sustainable digital economic growth relies on three powers: transmission, computing, and storage. To build these powers, it is crucial to consistently invest in connectivity infrastructure like 5.5G, prioritize green deployment methods, and foster local digital talent."

Dr. Philip Song, Chief Marketing Officer of Huawei Carrier BG, delivered the keynote about 'Striding towards the 5.5G Era,' stating: "With the arrival of the 5.5G era, people will be able to enjoy true-to-life experience such as 3D video. With the maturity of the RedCap technology and the innovation of the Passive IoT technology, the industry digitalization process will be accelerated. We hope that all device and application partners, local content partners and policy makers can work together to create more values to society with the 5.5G era."

In his speech, Martin Creaner, Director General of the World Broadband Association, emphasized: "The WBBA is bringing together service providers, suppliers, users, investors and governments to remove the barriers and help realize the socioeconomic benefits of Giga/10Giga Society for the region."

During the summit, Mr. Rashid Alahmedi, COO of InfraX, said: "5.5G with 10x network capabilities compared to 5G, will address the current technology gaps and enable various digital services in the power grid industry. However, business model innovations based on the new opportunities and close collaboration among stakeholders are key to driving the digital transformation in the power grid as well as many other industry sectors in the 5.5G era."

Stephen Wilson, Omdia Senior Principal Analyst, delivered a keynote and said: "The demands on broadband networks are developing rapidly, pushed by a combination of rapid growth in connected devices, increasingly bandwidth hungry applications, and greater reliance on the cloud. Service providers need to invest in next-generation broadband technology to not only meet such demand, but also create new business models that will enable future revenue growth and ensure fast RoI."

> *At the Summit, led by the UAE TDRA, etisalat by e&, du, infraX, Quanray, HTC, Lierda, and Huawei jointly launched the 5.5G OpenLab. The lab is dedicated to building a 5.5G ecosystem alliance, testing ecosystem interoperability, and developing advanced use cases for consumers, homes, and industry sectors.*

As part of this summit, Huawei also launched FWA2 (Fixed Wireless Access), a new generation home broadband (HBB) service, which is supported by advanced 5.5G technology. During the launch, Mr. Vanness You, Vice President of Huawei ME&CA CNBG, said: "With the large-scale commercial use of multi-carrier aggregation terminals and the development of RedCap technology, it's time to upgrade from FWA2 standard to FWA2. FWA2 includes FWA Pro represented by up to 1 Gbps speed, FWA Lite and FWA Biz with the feature of low-cost and high-reliability. This is the first wave of use cases that can be generated by 5.5G."

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Meanwhile, the world's leading technology provider and a global leader in information and communications technology (ICT) solutions, also emphasized the crucial role of green ICT development in ensuring sustainable digital economic growth during a keynote delivered by Mr. Alex Wang, Senior Vice President of Huawei Carrier BG Marketing.

In his address, Mr. Wang highlighted the evolution of intelligence and the need for co-development between ICT and energy technology. "Much like human evolution, our technology has evolved to become increasingly intelligent. Today, computing capability has grown by leaps and bounds and consequently, the corresponding energy consumption is also increasing. We firmly believe that green and low-carbon development, as well as digital and intelligent transformation are the two main forces driving the fourth industrial revolution forward."

Green ICT deployment is considered a prerequisite for sustainable digital economic growth. Mr. Wang emphasized that digital technology advancements provide new opportunities to achieve sustainability while meeting user experience requirements. He identified the density of connections, computing power, and decarbonization intensity as the main dimensions for measuring the green digital economy.

According to estimations by ITU, the connectivity density will increase as global data traffic increases 14 times from 2020 to 2030. The computing power is also poised to grow more than 10 times during the same period. However, the massive data and computing power growth will naturally result in higher network energy consumption. This can pose a challenge, especially in light of the Paris Agreement that requires the ICT industry to reduce carbon emissions by 45% within this decade.

To face the challenge and reduce carbon emissions, Mr. Wang highlighted three critical aspects: energy efficiency, the utilization rate of renewable energy, and user experience.

First, Huawei has developed a three-layer green solution to enhance network energy efficiency and has introduced "Zero Bit, Zero Watt" to minimize energy consumption, particularly during idle network hours. In low traffic load scenarios, Huawei's multi-dimensional shutdown technology achieves "deep dormant" for Active Antenna Units (AAUs), significantly reducing AAU power consumption from 300W to below 10W.

Second, Huawei's approach to renewable energy focuses not only on the scale of deployment but also on the efficiency of deploying and utilizing green energy. The company has transitioned from network-level to site-level planning and deployment of green power, improving accuracy. Intelligent scheduling, operating at daily to minute levels, optimizes the efficiency of renewable energy generation, conversion, and utilization, resulting in enhanced economic and environmental benefits.

Last but not least, in terms of user experience, Huawei ensures network Key Performance Indicators (KPIs) for energy-saving while prioritizing user satisfaction. Optimal energy-saving strategies are implemented for different network scenarios, maximizing energy efficiency while guaranteeing basic network KPIs in low-traffic situations. For high-traffic scenarios such as Fixed Wireless Access (FWA) services and VIP users, Huawei focuses on providing an exceptional user experience.

In addition to technological advancements, Huawei actively collaborates with global operators and standard organizations to promote the standardization of green indicators. Mr. Wang urged operators in the Middle East, North Africa, and South Asia regions to join forces in promoting innovative regional green indicators. This includes the application of multi-dimensional energy efficiency indicators, the establishment of regional network energy efficiency benchmarks, and guidance for constructing networks that prioritize both user experience and energy efficiency.

By emphasizing the importance of green ICT and sustainable connectivity, Huawei Technologies aims to contribute to developing a digital economy that is environmentally friendly, efficient, and meets the evolving needs of users.

TMRW Foundation CEO Cevat Yerli Presents an Outlook on "A New Digital World of Possibilities: The Internet of Life®" at the SAMENA Council Leaders' Summit 2023

Cevat Yerli, the Founder and CEO of The TMRW Foundation, captivated the audience at the SAMENA Council Leaders' Summit 2023 in Dubai on May 15th, 2023, with a visionary keynote address and participation in a panel discussion held within the Digital Innovation Cluster. Yerli's keynote speech, titled "A New Digital World of Possibilities: The Internet of Life®," shed light on his ambitious vision for the future of communication and its potential impact on society.

Yerli, a trailblazer in the gaming industry whose former venture Crytek revolutionized the gaming industry and 3D graphics technology in the early 2000s, focused his talk on the future of communication, highlighting the upcoming transformation from two-dimensional web pages to interconnected three-dimensional spaces. He introduced his vision for this next generation of the web, the Internet of Life®, as a socially responsible mission aimed at empowering individuals and contributing positively to the planet. This mission draws inspiration from the immense power of reality, the way we meet, collaborate, communicate, and in principle how we experience togetherness on the internet.

The backbone of Yerli's Internet of Life™ vision is proprietary technology known as RealityOS®. This cloud-based social 3D communications platform, backed by hundreds of patents and thousands of man-years of experience, provides developers, innovators, governments, and businesses of all sizes the opportunity to shape their unique visions for the Internet of Life®.

In Yerli's view, the Internet of Life® represents the third evolution of the internet, following the first phase of information sharing and the second phase of global connectivity. Its purpose is to bring people together in ways that transcend traditional online experiences. The first manifestation of this vision is an application called ROOM, a revolutionary 3D communications platform that brings virtual spaces to a new dimension. ROOM is inspired by the natural ways people interact, collaborate, and communicate, aiming to foster deeper levels of togetherness.

Accessible through any browser worldwide, this inclusive platform enables billions of people to connect without the need for additional devices or artificial representations of themselves. Although ROOM is available now, it serves as just a preview of the future possibilities that the Internet of Life™ can offer. Yerli shared further applications of the Internet of Life® that have already been realized in the UAE, KSA and beyond.

Yerli emphasized that technology alone does not shape the future; instead, it is the collective efforts of people utilizing technology that create meaningful change. He stressed the importance of responsible technology development, ensuring that decisions align with the needs of society and future generations.

During the panel discussion at the SAMENA Council Leaders' Summit 2023, CEO Cevat Yerli also shared his perspective on the distinction between the metaverse and the Internet of Life. Yerli emphasized that, while the Metaverse is centered around entertainment and escapism, the Internet of Life® represents the future of communication and real-world connections.

Yerli concluded his keynote by inviting the audience to join him and his team in pursuing the immense ten trillion-dollar opportunity presented by the Internet of Life®: "It's about connecting people. In this case, it's about bringing people together. For me, the Internet of Life®'s sole purpose is to enhance relationships between people across the world. Because we need communication. If you don't get together, we can't build a better world, it's so fundamental to our DNA. We are social animals. When we are alone, we deteriorate, but when we get together, we improve and thrive. That's human nature."

stc Kuwait Participates in the Leaders' Summit 2023 Organized by SAMENA Council

Kuwait Telecommunications Company – stc, a world-class digital leader providing innovative services and platforms to customers, enabling the digital transformation in Kuwait, announced its participation in the "Leaders' Summit 2023", which is SAMENA Council's premier annual congregation for Public and Private sector Leaders from South Asia, the Middle East, North Africa, Asia, Europe and beyond. Through its participation, stc Kuwait showcased the 4 key pillars behind its future corporate strategy which aims to assist the Company in leading the Kuwaiti telecommunications and ICT market.

The theme of the Leaders' Summit this year focused on 'Sustainable Connectivity and Emerging Ecosystems in Digital Economy', where key players including high level executives and industry leaders joined together at the Atlantis Hotel in Dubai, UAE on 15 of May 2023 to discuss key subjects related to the telecom and digital solutions market in the MENA region.

The event this year focused on ICT Infrastructure Requirements in Emerging Markets, SA-ME-NA Digital Services Landscape & New Digital Enablers; Multi-Dimensional Approaches in Cybersecurity; Evolution of 5G Digital Technologies, Future Mobile and Metaverse based Life and Business, a need for New Frequency Allocations for Telecom Operators, Non-Terrestrial Network Integration, and overall Value-Creation, among other important matters that Public-sector and Private-sector leaders have identified to the Council for dialogue.

Engineer Maziad Alharbi, CEO of stc Kuwait and Member of the Board of Directors at SAMENA Telecommunications Council, attended the summit alongside other representatives from stc.

Through its role as an industry leader in the local and regional telecom markets, stc showcased the various milestones the Company managed to achieve to enhance its position as a digital pioneer building on its initiatives aimed at enabling the digital transformation in Kuwait. In this regard, the acquisition of E-Portal in Q2-2022 has been a key milestone in achieving this leadership position, and is expected to support stc's future business expansion strategy.

By completing a transformation journey that started in 2019, stc has defined its future Corporate Strategy in order to enhance the company's aspiration and goals to LEAD the Kuwait telco and ICT market by offering innovative services, growing priority segments, and deploying an efficient and digital operating model.

Underscoring the Company's commitment to digital transformation, stc emphasized in a statement the importance of its participation in industry-leading events like the Leaders' Summit. Such platforms provide invaluable opportunities to engage with industry experts, exchange ideas, and acquire knowledge that can be harnessed to seize market opportunities. With its strategic investments in 5G infrastructure, stc has evolved into a trailblazer offering digital, cloud, IoT, and data center services, alongside cutting-edge ICT solutions and services. Now, more than ever, the Company is well positioned to support the vision of enterprises, government entities, and SMEs in line with Kuwait Vision 2035 through innovative solutions tailored to their diverse needs and requirements. This is the embodiment of stc's commitment to enabling digital transformation and enriching the customer journey experience.

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Securing Sustainable Cyberspace

Saudi Arabia Launches Cybersecurity Institute to Address Threats in the Cyberspace and Build International Cooperation

Cybersecurity Discussions Held during Leaders' Summit 2023 to Continue at the Global Cybersecurity Forum (GCF) 2023 in November

Saudi Arabia has established a new institute for the Global Cybersecurity Forum (GCF) in Riyadh. The announcement of the royal decree for the institute was made by Saudi Arabia's King Salman.

The Global Cybersecurity Forum Institute (GCFI) aims to explore the potential of cyberspace and support efforts to boost cyber safety on a global scale, and its advisory and trustees board are to feature experts from around the world. The Institute is also positioned to facilitate international projects and partnerships to strengthen existing efforts on key initiatives.

> *The GCFI is an international non-profit organization, with administrative and financial autonomy. To drive the achievement of its objectives, the GCFI has an established governance architecture. This includes a Board of Trustees, Advisory Council, and Chief Executive Officer (CEO). The Institute carries the objective of bringing in experts and decision-makers from around the world over "to meet and discuss protecting the most vulnerable in cyberspace, while maximizing its benefits for everyone."*

Global Cybersecurity Forum

Saudi National Cybersecurity Authority to Hold Global Cybersecurity Forum in November 2023

The Saudi National Cybersecurity Authority (NCA) will hold the Global Cybersecurity Forum (GCF) in Riyadh on November 8-9.

This year's GCF will be held under the theme of "Charting Shared Priorities in Cyberspace" and will build directly from the outcomes and insights of the successful 2022 GCF event, aiming to advance the global cyber community towards aligning on strategic priorities, expanding future opportunities, and deepening multi-stakeholder engagement.

It will build directly on the outcomes and insights of the successful 2022 GCF event, aiming to advance the global cyber community towards aligning strategic priorities, expanding future opportunities, and deepening multi-stakeholder engagement.

GCF 2023 seeks to expand dialogue on these diverse challenges and opportunities, advance knowledge generation, and steer collaborative efforts. The forum will be charting the shared priorities through five sub-themes: Cyberspace Amidst Polycrisis, Cyber Growth Unlocked, Across Cyber Divides, Inside Cyber Minds, and Emerging Cyber Horizons.

The GCF, hosted by the National Cybersecurity Authority (NCA), was launched in February 2020, during the Kingdom of Saudi Arabia's G20 Presidency, as a global platform aiming to build a more resilient and better cyberspace for all. The platform emphasizes the importance of international collaboration among diverse stakeholders and nations to accomplish this goal.

THE INSTITUTE'S AIMS

Strengthening Cybersecurity at the international level

Elevating international cooperation and enhancing socioeconomic development in Cyberspace

Enabling deeper dialogue and alignment of international efforts in cybersecurity

> *"Aiming to unite global action around the shared principles and values, the GCF Institute will tackle the most challenging cybersecurity issues facing governments, businesses, and individuals," a statement by the GCF Institute said, adding that it will be a "catalyst for the exchange of ideas, driving thought leadership and developing research to inform policy solutions and action."*

"Aiming to unite global action around the shared principles and values, the GCF Institute will tackle the most challenging cybersecurity issues facing governments, businesses, and individuals," a statement by the GCF Institute said, adding that it will be a "catalyst for the exchange of ideas, driving thought leadership and developing research to inform policy solutions and action."

Founded by the Saudi government's National Cybersecurity Authority, the GCF Institute, which will be headquartered in Riyadh, will have an Advisory Council, composed of international experts carefully drawn from the government, academia, think-tanks, and the private sector. The GCFI is an international non-profit organization, with administrative and financial autonomy. To drive the achievement of its objectives, the GCFI has an established governance architecture. This includes a Board of Trustees, Advisory Council, and Chief Executive Officer (CEO). The Institute carries the objective of bringing in experts and decision-makers from around the world over "to meet and discuss protecting the most vulnerable in cyberspace, while maximizing its benefits for everyone."

The GCFI's establishment comes ahead of the Global Cybersecurity Forum in Riyadh in November 2023, during which SAMENA Council, building onto discussions held on securing cyberspace and building digital trust during its Leaders' Summit 2023 in May, will also contribute insights in representation of the private sector.

Saudi Arabia's Cybersecurity Recognized Globally

Kingdom of Saudi Arabia has secured second place in the global Cybersecurity Index in the World Competitiveness Yearbook (WCY) for 2023 by the Swiss-based International Institute for Management Development (IMD). Saudi Arabia also ranked 17th overall in 2023 – jumping by seven places from 2022 – in the overall competitiveness ranking.

With Saudi Arabia frequently ranking among the top economies in the world for cybersecurity, the latest recognition by IIMD is a testament to the efforts of entities like the National Cybersecurity Authority (NCA), one of Saudi Arabia's key national security enablers.

Saudi Arabia has cemented its leadership position through several initiatives to build a sound and sustainable cybersecurity ecosystem in the Kingdom. The International Telecommunications Union (ITU) has also designated the Kingdom as a global leader in cybersecurity, ranking Saudi Arabia second on its Global Cyber Security Index.

NCA is the primary national authority for cyber concerns in the Kingdom. It works to strengthen Saudi Arabia's cyberspace, enabling it to protect national security and vital state interests. The Authority defends the Kingdom's critical infrastructure, priority economic sectors,

and government services and activities from cyber threats. NCA sets the necessary standards for licensing the import, export, and use of hardware and software in terms of cybersecurity, while ensuring compliance with these standards. NCA's work contributes to the creation of a secure and thriving economy that guarantees the prosperity of Saudi Arabia, and its people.

The 1 Billion Lives Challenge

Achieving Digital Inclusion through the Power of Commitment, Innovation and Collaboration

The 1 Billion Lives Challenge is open to any organization or initiative that either makes an existing or new commitment to improve a quantified number of lives through digitally inclusive services, or provides a defined, verified, and material resource contribution towards an initiative with a recognized commitment.

As such, the core metric is the outcome – a life improved through new adoption of a digital service. Members are requested to make a commitment on the number of lives they aim to positively impact by 2025. Commitments must be backed by credible initiatives. The focus must align with one of the three focus areas above, or tackle one of the three structural barriers: access, affordability, and usability. Many partners have joined the challenge and made sizeable public commitments to improve a quantified number of unique lives. They have recently reported back the progress made against their individual 2025 targets.

Since January 2021, EDISON Alliance partners have positively impacted the lives of 454 million people around the world by activating over 250 initiatives across 90 countries. This represents 45% of the 1 billion target already, with three full years left until 2025.

EDISON partners also reported back on how they have addressed key barriers, such as affordability, usability and accessibility, in different parts of the world.

Key Messages for the Industry

While one-third of the 250+ partner initiatives are pursuing online learning solutions, only 4% of the total number of lives were impacted through online education. The low conversion ratio demonstrates the difficulty and resources needed to offer meaningful services such as online education to underserved communities.

Digital literacy is a key priority, well covered by partner initiatives (40% of initiatives are aimed at increasing digital literacy), but it also requires time, capital and effort, which explains why only 11% of the total number of lives were impacted through digital skills training at this stage.

One of the key barriers to closing the digital divide, which remains underappreciated, is affordability. The two regions with most lives improved by EDISON partners are South Asia (79% of total) and Africa (10%) and map to the two regions most in need.

Four out of the five countries with most lives improved are in South Asia (India, Bangladesh,Pakistan and Indonesia). The combined population of these five countries totals over 2 billion people.

Out of the 10 countries with most partners activating commitments, two are high-income countries and three are upper middle-income countries.5 Digital deserts in rural and urban areas and the lack of sufficient connectivity speeds and skills to meaningfully connect are challenges that most countries in the world face, irrespective of GDP levels.

Source: Extracted from the "1 Billion Lives Challenge" Impact Report by EDISON ALLIANCE, January 2023

EDISON ALLIANCE

About the EDISON Alliance

The EDISON Alliance is a global movement of public and private sector stakeholders who are bringing people online so they can access critical services in healthcare, finance and education.

About the Device Affordability Workstream (Co-led by EDISON Alliance and GSMA)

Challenge

- Key to using these critical digital healthcare, finance and education services is connectivity. Yet around 3.2 billion people are not using mobile internet despite living in areas with mobile broadband coverage (3G+).
- Device affordability remains one of the key barriers to digital inclusion. In many LMICs, handsets can cost over 70% of average monthly income.
- This is a growing concern, particularly for those with limited income to save or limited access to credit or financing options, that needs to be tackled.

Solution

- To solve the affordability challenge, the EDISON Alliance is working on a new pillar to develop a global call to action to improve the affordability of low-cost handsets.
- Co-led by the GSMA, this pillar aims to convene a range of ecosystem players to develop a breakthrough solution for low-cost smartphones.
- The end goal is to produce a call to action, roadmap and a Playbook with a set of recommendations.

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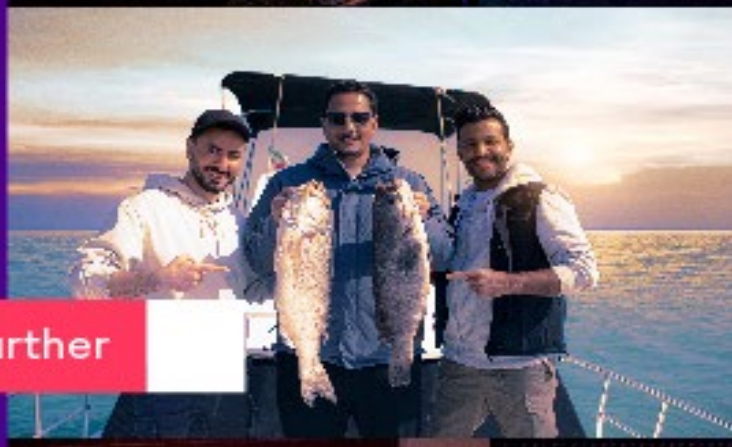
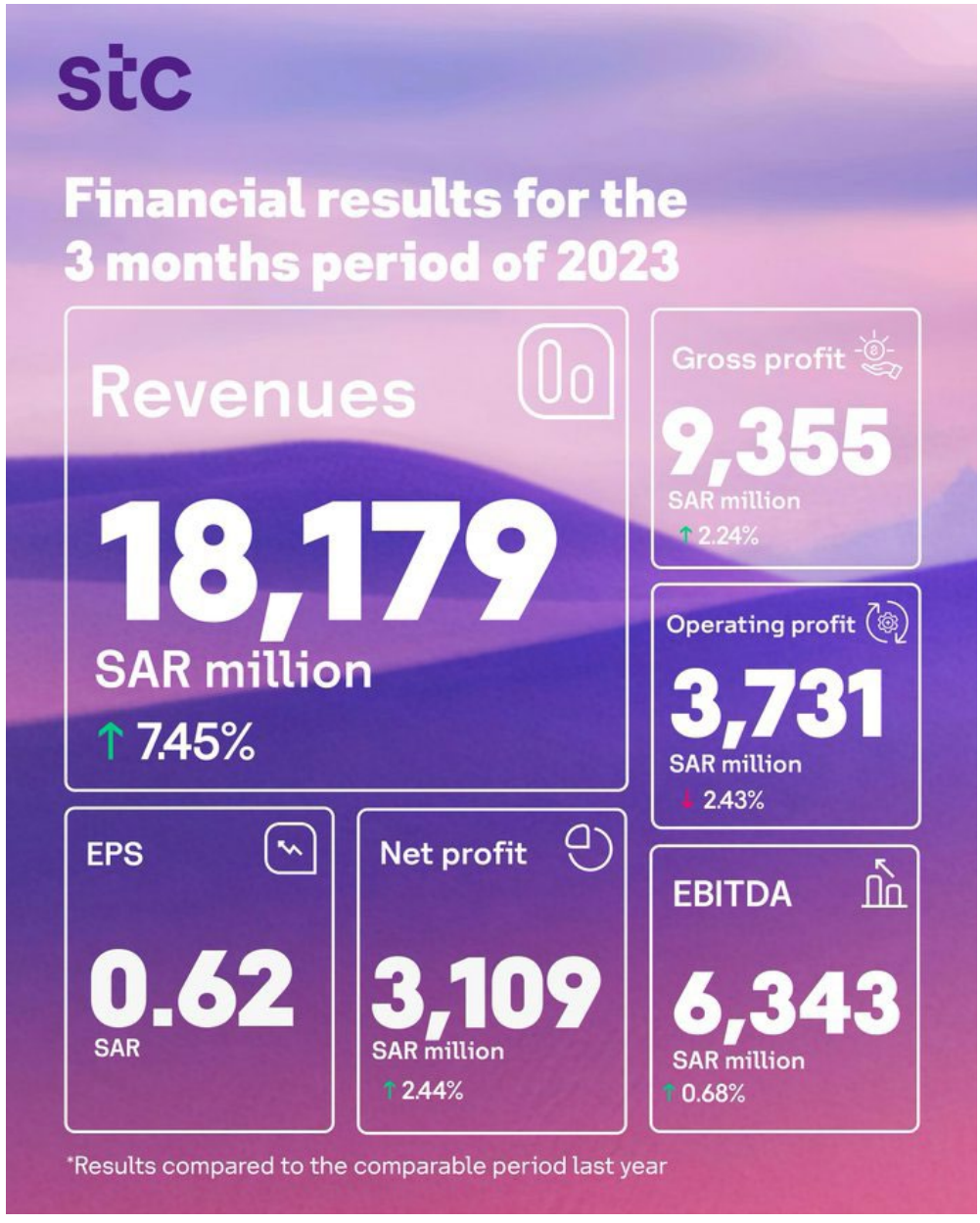


MEMBERS NEWS

stc Posts a 7.5% Increase in Revenues in Q1 2023

Saudi Telecom Company (stc) has published its financial results for the three months ended 31 March 2023, reporting a 2.4% increase in net profit to SAR3.109 billion (USD828 million) from SAR3.035 billion in the corresponding period a year earlier. The company attributed the positive result to a SAR1.260 billion increase in revenues (marginally offset by the rise in cost of revenues by SAR1.056 billion) and the decrease in total other expenses by SAR186 million. In the period under review, stc reported a 7.5% improvement in revenues to SAR18.179 billion (SAR16.919 billion in Q1 2022), while EBITDA remained flat at SAR6.343 billion. Commenting on these results, Eng. Olyan Mohammed Alwetaid, stc Group CEO, stated that during the first quarter of this year, and in line with the company's "DARE 2.0" strategy, the Group announced the launch of its Corporate Investment Fund (CIF). The fund aims to invest in early stages startups in various domains including fintech, cybersecurity, artificial intelligence, Internet of Things, and other promising areas. The launch of the fund comes as a reinforcement of the Group's leadership in the digital and innovation fields, and in support of the Kingdom's Vision 2030 to diversify the economy by expanding investment in new sectors and supporting entrepreneurs and startups relevant to the Group's strategy, locally, regionally, and globally.



center3, Owned by stc Group and Alcatel Submarine Networks to Connect Saudi Arabia with Europe by Building the EMC West Subsea and Terrestrial Data Cables

center3, owned by stc group, on behalf of the consortium partners of EMC Subsea Cable Company Ltd (EMC Company) and Alcatel Submarine Networks (ASN), the leader in the manufacturing and installation of submarine optical systems, announced

the signing of the Supplier's Contract for the construction of two subsea and terrestrial data cables (EMC West) that will connect Saudi Arabia with Europe. The second phase of the EMC System (EMC Global) that will connect Saudi Arabia with Asia is in the process of being finalized and will be announced soon. The EMC project enables KSA, Greece, and Cyprus to leverage their geographic position. It delivers a much-needed new data corridor, positioning the three countries at the epicenter of a digital connectivity infrastructure, which will become a cornerstone of the digital transformation era. The EMC cable is designed, from its inception, to realize KSA's Vision 2030 and Greece 2.0 by transforming the Kingdom of Saudi Arabia into a "Digital Hub" that connects Asia with Europe and Africa and positioning Greece and Cyprus as "European Union's East Data Gateway". ASN will begin to construct EMC West, linking Haql (Saudi Arabia) with Genova (Italy) and Marseille (France), via Cyprus and Greece. The two cables – consisting of multiple Fiber Pairs - will have branches in Cyprus, Crete, and Athens. The EMC system is expected to be in operation on Q1 2026 (RFS date). The EMC consortium partners expressed their gratitude and appreciation to all the stakeholders involved and congratulated their teams and the related Ministries for facilitating the implementation of this ground-breaking and high-profile project.

solutions by stc and Nile Partner to Deliver Secure Network as a Service to Customers in Saudi Arabia and the Extended Region

Saudi Arabia-based solutions by stc, the leading enabler of digital transformation in the Kingdom, and Nile, a leader in enterprise Network as a Service (NaaS), today announced their partnership to deliver secure campus NaaS to customers in Saudi Arabia, Kuwait, Bahrain, Oman, and Egypt. The partnership will expand Nile's footprint to customers across a variety of sectors in Saudi Arabia and the region including education, mega projects, transportation, retail, and enterprise. It will also enable solutions by stc to provide its customers with Nile's emerging and innovative technologies supported by solutions' deep understanding of the local and regional market needs for digital transformation, helping public and private organizations achieve their digital goals and business growth. "As leaders in digital transformation, we recognize the power of partnership in achieving shared goals, creating value for customers, and driving innovation in the market. Our collaboration with Nile is a testament to our commitment to delivering cutting-edge solutions to the MENA region," commented Omer Alnomany, CEO of solutions by stc. "Together, we are driving innovation, enhancing value to customers, and creating

opportunities for growth and development in Saudi and the region." "We are excited to partner with solutions by stc, to introduce our campus NaaS offering for the first time in Saudi and the region," said Pankaj Patel, CEO of Nile. "We believe solutions' approach aligns with Nile's intent to fundamentally change how connectivity is delivered and maintained, bringing greater value in terms of operational efficiency to organizations." solutions and Nile's joint efforts will provide customers with an innovative NaaS solution for enterprise networks. Nile's campus NaaS solution is characterized by its new subscription-based business model, automated lifecycle management, performance assurance, and built-in security features that protect against threats that target vulnerable wired and wireless networks. "Nile is a purpose-built offering that takes once complicated and convoluted network operations and transforms them into a simple, secure, and reliable solution that is needed in these regions," said John Chambers, co-founder, and board member at Nile. "In collaborating with solutions by stc, the onus is no longer on customers to make sure internal systems and supporting products are more secure – instead, they can enjoy the long-term benefits of a secure-by-default solution. Nile has essentially reimaged the wired and wireless services market offering secure, simple, high-performance networking at a lower cost." This partnership aligns with the Saudi Vision 2030 to accelerate digital transformation across various sectors and to strengthen the position of Saudi Arabia as a center for innovation serving the world.

inspireU from stc Enables Over 90 Startups That Succeeded in Getting Total Investments of More Than SAR 700 Million

stc Group, an engine of digital transformation in the region, announces that inspireU's enablement to more than 90 startups since inception resulted in more than SAR 700 million of total investment gathered by Saudi entrepreneurs. The group also announced the expansion of the accelerator by launching a new track that provides additional support for startups in their growth phase as part of its endeavor to support entrepreneurship, enable innovation in the Kingdom, and contribute to strengthening the digital economy in the region. The new advanced track is part of the group's continued efforts to enable SMEs to reinforce Saudi Arabia's position as a major digital hub for the MENA region. A ceremony was held in the presence of, His Royal Highness Prince Mohammed bin Khalid Al-Abdullah Al-Faisal, Chairman of the Board of Directors of stc Group, His Excellency the Deputy Minister of Communications and Information Technology, Eng. Haitham bin Abdul Rahman Al-Ohali, and the CEO of stc Group, Eng. Olayan bin Mohammed Alwetaid. The ceremony included pitches from 17 startup founders and was held in King Abdulaziz Telecom Complex in Riyadh. During the ceremony, stc Group CIO, Eng. Motaz Alanqari said: “inspireU is playing a vital role in enabling entrepreneurs and startups to maximize and realize their full potential in developing new businesses within the digital economy landscape. Our continued investment in local SMEs supports our ongoing efforts to drive Saudi Arabia's position as a major digital hub, enhance the digital economy, and enable digital transformation in the Kingdom and beyond. Since its inception, more than 40 million users have benefited from inspireU's alumni startups, and more than 600,000 jobs have been created. This confirms stc's commitment and contribution to promoting the digital economy, creating job opportunities, and supporting local content by transforming entrepreneurs' ideas into successful projects." Alanqari concluded, “stc intends to expand the accelerator by launching inspireU advanced to enable leading

startups in their growth stage. It aims to help them grow their business, increase revenues, and improve their competitive advantage in the market to achieve a prosperous and technologically advanced future based on strategic investments and sustainable growth". The ninth batch of the program included a special track that supports startups in the field of cybersecurity in cooperation with sirar by stc, the digital provider of cybersecurity services. This track aims to promote local content and enable digital cyber projects, as it witnessed the organization of several workshops and specialized technical advisory sessions. inspireU is a leading business accelerator in Saudi Arabia, providing local entrepreneurs with a network of successful entrepreneurs and mentors, logistical and advisory services, financial support, and access to an intensive training program provided by experts and consultants from Silicon Valley. inspireU accelerator supports startups in their endeavors by linking them with investors and venture capitalists in the market. The value of the free services it provides startups is about 600 thousand riyals. In addition, the program provides entrepreneurs with office space, promotes their startups, and provides opportunities to participate in the most important events, from workshops to national and international exhibitions.

Arabsat Badr-8 Successfully Launched: Featuring Airbus' Innovative Optical Communications Payload TELEO

The Airbus-built Arabsat Badr-8 telecommunications satellite has been successfully launched from Cape Canaveral, Florida. Based on Airbus' latest geostationary Eurostar Neo satellite, Badr-8 will provide connectivity for users across Europe, Middle East, Africa, and central Asia. The spacecraft is also equipped with a world first, Airbus' innovative space demonstrator TELEO to provide space to ground optical communications at gigabit speeds. The TELEO demonstrator payload is designed to facilitate very highcapacity optical feeder link communications, playing a crucial role in Airbus' development of a new generation of optical communications technology in space. Jean Marc Nasr, Head of Space Systems said: "Marking our third successful launch of the Eurostar Neo series and our eighth spacecraft built for Arabsat, Badr-8, equipped with the very innovative TELEO payload, is the latest major milestone for our telecoms business. Featuring increased payload capacity and more efficient power and thermal control systems, Badr-8 will replace and increase Arabsat's capacity. Following the successful launch and separation, Badr-8 is using its electric propulsion system to reach geostationary orbit at 36,000 km. The satellite will then undergo a comprehensive testing period in geostationary orbit before entering full service. With a launch mass of 4.5 tons and 17.8 kW of power, the satellite is designed to operate in orbit for 15 years. Airbus' ultra-reliable geostationary telecommunications satellites have achieved more than 1,300 years of service in orbit. Airbus' Eurostar Neo platform has been developed in the frame of the European Space Agency's (ESA) Partnership Projects, together with the French space agency CNES, and strongly supported by the UK Space Agency and other agencies across Europe. The TELEO demonstrator payload was developed with support from CNES.

e& On Track to Hit 2030 Net-Zero Targets

UAE operator e& claimed to have made significant progress towards achieving net-zero emissions by 2030, stating it had begun to accelerate the implementation of climate action projects in the country. It stated it has deployed up-to-date radio equipment which is more energy-efficient and employing AI to optimize power consumption based on traffic loads. The update comes as the country prepares to host the United Nations COP28 climate change conference later this year, with 2023 declared the year of sustainability in the UAE. One of e&'s deployments of the equipment reduced energy consumption by 52 per cent compared with its previous kit. This is equivalent to 7.6 tonnes of CO_2 emissions per site per year for high-level sites. e& also said it invested heavily in converting indoor sites to outdoor free cooling systems, reducing the Global Warming Potential of refrigerants by recovering, recycling and reusing gases. It also now uses on-site renewable energy through solar panels and hybrid power systems to replace diesel generators at off-grid sites. In March, e& struck a partnership with IBM to deploy software focused on sustainability, adding to a separate partnership with Ericsson. Ahead of COP28, e& International CTO Sabri Ali Albreiki said it is "accelerating the pace of decarbonization of its network infrastructure business to enable a low carbon society, reduce environmental impact and promote sustainability".

e& and Vodafone Form Strategic Relationship Across Europe, the Middle East, and Africa

e& and Vodafone Group Plc ("Vodafone") announced that they have agreed to a strategic relationship that will bring the two operators closer together in certain aspects of their businesses. As part of this strategic relationship, e& and Vodafone have entered into a relationship agreement that establishes e& as a cornerstone shareholder of Vodafone (the "Relationship Agreement"). This is the next phase in a strategic relationship that began in May 2022, when e& made its original investment in Vodafone. The strategic relationship also enables collaboration across a broad range of growth areas, as e& and Vodafone may be able to benefit from each other's respective operational scale and complementary geographic footprint. The key areas of commercial collaboration that e& and Vodafone will initially pursue include:

- In Enterprise, e& and Vodafone will explore jointly offering cross-border digital services and solutions to multi-national customers and public sector organizations. Services will include fixed and mobile connectivity, Mobile Private Networks, IoT, cybersecurity, and cloud-based services.
- In Procurement, e& and Vodafone will seek to share best practices and may adopt joint procurement.
- In Carrier, Wholesale & Roaming, the two operators will work together to become the partner of choice in providing access to high-quality digital infrastructure.
- In Technology, both teams will seek to work together on a technology roadmap, including the evolution and adoption of OpenRAN.

Under the terms of the Relationship Agreement, the Group Chief Executive Officer of e&, will join the Vodafone Board as a non-executive Director (the "e& Nominee"), for as long as e& maintains its current shareholding of 14.6%. e& will also have the ability to nominate a second non-executive Director (the "Independent Nominee"), independent of e&, if its shareholding exceeds 20% (subject to certain adjustments while regulatory approvals are outstanding). These appointments are subject to receipt by e& of the required regulatory approvals. Other terms of the Relationship Agreement are summarized below. Hatem Dowidar, Group Chief Executive Officer of e&, said: "Our investment in Vodafone is anchored by Vodafone Group's established position and worldwide reputation as a prominent industry player that provides cutting-edge connectivity and digital services. This aligns with e&'s vision of becoming a global telecom and technology player." "We extend a warm welcome to Margherita Della Valle as Vodafone's newly appointed Group Chief Executive Officer, and we have full confidence in her leadership abilities to steer the company toward growth. We are convinced that our strategic relationship will unlock opportunities for both companies to explore the swiftly expanding global telecom market and next-generation technologies." Margherita Della Valle, Vodafone Group Chief Executive, said: "We know e& well, and I'm delighted we will strengthen our existing relationship through this strategic relationship. This will allow us to capture efficiency-enhancing opportunities in our respective markets and brings additional telecoms experience to our Board."

e& International and Circles Form a Joint Venture to Provide Best-In-Class Digital Telco Experiences

e& international announced that it has entered into a strategic partnership with Circles, a global technology company, to bring best-in-class digital experiences to customers across its operating markets and beyond. e& International, part of e&, that is responsible for growing the international portfolio of world-class modern digital telcos, has formed a joint venture with Circles to empower its network of Mobile Network Operators (MNOs) and other operators based in the region to launch digital telco brands that deliver delightful digital experiences for the digitally savvy generation. Circles is a global technology company that's reimagining the telco industry with its SaaS platform, Circles X, and helping operators launch and operate successful digital brands. Having pioneered a successful blueprint for disrupting the telco space in Singapore, Circles has since launched its own digital telco, Circles. Life, in partnership with M1 in Singapore, Chunghwa in Taiwan and Optus in Australia. Circles has also partnered with other national MNOs such as XL Axiata in Indonesia to launch Live. On and KDDI Corporation in Japan to launch POVO 2, enabling them to accelerate growth and capture market share within a short period of time. The agreement will enhance e& international's position as a pioneer in bringing broad-spectrum technologies to the region, as it will benefit from Circles' digital expertise and global operations across 13 Asia Pacific and European markets, bringing the best in digital solutions to e&'s footprint across 16 markets and beyond. It will also leverage Circles' cloud-native, digital SaaS platform called Circles X, which allows MNOs to deploy digital telco brands from anywhere in the world and unlocks an agile digital-first revenue growth engine, at a fraction of the operating cost by a traditional telco. Built for operators by an operator, Circles X empowers MNOs to drive seamless and personalized digital experiences, thus achieving a net-promoter-score (NPS) that is higher than industry standards. This partnership is in line with e&'s transformation journey into a global technology group as announced last year, which is backed by its ambitious strategy to accelerate growth through its specialist business verticals. It provides e& with the world-class digital capabilities to grow the telco business as well as adjacent digital businesses with cutting edge customer experience. Mikhail Gerchuk, CEO, e& international said: "As the world becomes increasingly digital, it's more important than ever for telcos to innovate and deliver next-generation services to meet the demands of digital native subscribers. At e&, we have doubled down on our efforts to surpass customer expectations by ensuring we make our services accessible anywhere, at any time, and from any device. To make this possible, we have worked tirelessly on enhancing the digital journey of our customers. Through our transformation from a reputed telco giant to a global technology and investment group, we are confident that we will continue to enhance our customers' digital journey according to their needs. Our partnership with Circles is solid proof of our commitment to heralding a new digital era, one that is filled with limitless possibilities where we can collaborate and accomplish more for a brighter, digital future." "We are delighted to embark on this journey with a partner like e&, who shares our common vision of an empowered digital future. Our Circles X technology demonstrates our continuous commitment to help the MNOs connect with the digitally savvy generation and deliver the delightful digital experiences that they want and need. Our operator and digital expertise from powering successful digital telcos allows us to transfer our knowledge and experience to our partnership with e&. We look forward to deepening our partnership with e& to accelerate digital transformation across their markets," said Rameez Ansar, CEO & Co-Founder of Circles. John McEvoy is appointed as the CEO of the joint venture. He said: "Our joint venture will enable us to leverage their expertise in digital technologies and our own strengths in telecom to deliver cutting-edge solutions to meet the evolving needs of the global mobile operator community. Together, we will create new opportunities for growth and success, while providing unique propositions to support these operators in launching independent digital brands and benefiting from distinctive commercial models. The objective is to provide unparalleled value to MNOs especially with the rise of digital native subscribers making it critical for them to adapt and innovate, while also driving growth and profitability."

Omantel Innovation Labs hosts UK Oman Digital Hub Cybersecurity Pilot Program for Startups

Omantel, the leading provider of integrated telecommunication services in the Sultanate of Oman, hosted the UK Oman Digital hub pilot program to allow Omantel Innovation Labs startups access to deep-dive sessions on cyber security awareness, providing tips on how to protect against supply chain risks, how to develop a cyber security 'culture' and on how to test new solutions quickly and securely. The five-week pilot program, supported by the UK Oman Digital Hub, was delivered by innovation company Plexal and Al Jabr to startups at Omantel Innovation Labs, a key player within the local startup ecosystem. The program also included peer to peer collaboration on security challenges, mentoring sessions with cyber experts, knowledge sharing by founders of startups and action plans on securing a business. The program, which began in February 2023 at the Omantel Innovation Labs, comprised multiple workshops conducted by experts including Amjad Beainy, co-founder and CTO at Octopus CyberSecurity and Maitham Al Lawati, CEO of PowerDMARC as well as speakers from the United Kingdom, including Stacey Lidgate, Director of Business Development at Cysiam and Trevor Graham, CEO and co-founder of Ampliphae. The deep dive sessions were part of a wider program called 'Cyber Oman', sponsored by the British Embassy Muscat, which has the goal of supporting the development of a cyber resilient ecosystem and a community with strong cyber security skills. HH Al Sayyida Ghada Al Said, Senior Manager Omantel Innovation Labs, said: "It was a pleasure to work with the UK Oman Digital Hub to allow our startups to have this level of access to expert cyber security advice and insights. Cybersecurity is a critical area of any technology startup and our startups greatly benefitted from this experience. We're eager to continue working with Cyber Oman to spread this knowledge within our local tech startup ecosystem." Jessica Hern, Senior Program Manager at the British Embassy in Muscat for the FCDO: "We are delighted to work with Omantel Innovations Labs on the first pilot of the Cyber Oman 'Secure' program, which aims to enhance Omani startups' cyber security knowledge and give them the skills to ensure their infrastructure is able to respond to cyber threats. We look forward to continuing our work with our partners like Omantel to build on the foundation that was laid during the first deep dive sessions. " Omantel is the Sultanate's first and leading integrated telecommunications services provider, enabling the digital society to flourish, allowing new ways of doing business and delivering a world of information, news, and entertainment. While striving to ensure an optimum customer satisfaction, Omantel plays a key social role to provide the required support and assistant to all sectors amongst the Omani society.

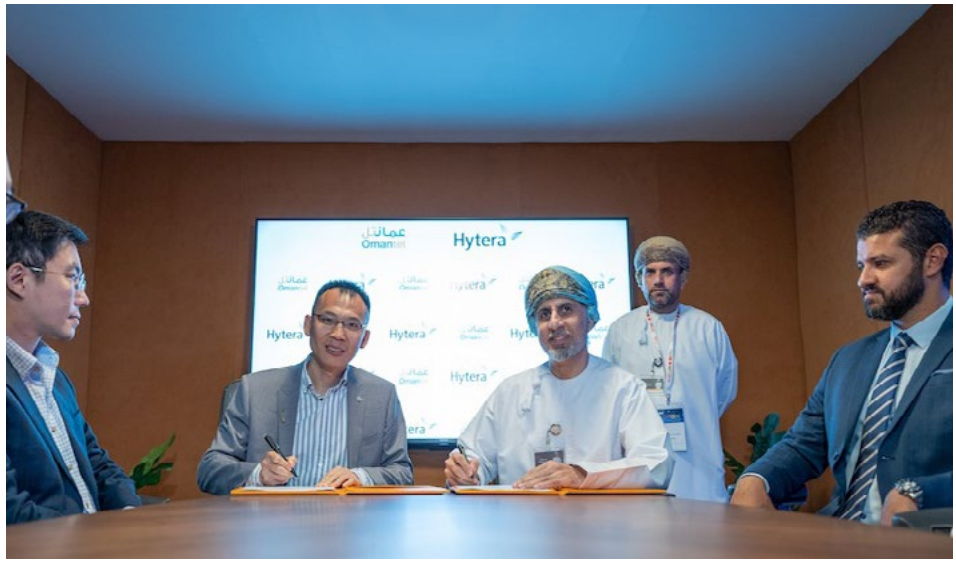
Omantel Invests in byanat for Data Analytics Solutions Expansion for Telecom Operators and Service Providers

Omantel, the leading provider of integrated telecommunication services in the Sultanate of Oman, has invested in byanat's Seed Funding Round to expand the provision of data analytics solutions through a software-as-a-service (SaaS) analytics platform for telecommunications operators and service providers. The funding round featured participation from 500 Global in collaboration with Sanabil Investments, an investment fund owned by the Public Investments Fund (PIF) in the Kingdom of Saudi Arabia, and Al Jabr MENA, a startup development and innovation firm. This funding is set to expedite byanat's technology and product development and enable entry into the Saudi market. byanat is one of the tech companies that was incubated at Omantel Innovation Labs. The company aims to enhance infrastructure in the telecom, energy, and utilities sectors. Their SaaS analytics platform assists businesses in effectively scaling and maintaining connected infrastructure, by unifying communication management, device management, and data analytics. Talal bin Said Al Mamari, CEO of Omantel, commented, "This historic investment partnership is an eloquent endorsement of the trust global investors have in Omani start-

ups. It also reflects Omantel's far-sighted vision towards innovation and technology. Omantel's investment in byanat is driven by our confidence in its potential to revolutionize the technology industry, not just in Oman but worldwide. As we continue to focus on enhancing and growing our innovative services and infrastructure, we also place a high priority on empowering startups through various programs offered by Omantel Innovation Labs". Omantel Innovation Labs, Oman's innovation and entrepreneurship center, fosters Omani tech startups and cultivates a thriving ecosystem. Their investment in byanat reaffirms their dedication to nurturing ground-breaking startups and reinforcing Oman's status as a regional leader in technology and innovation. Ahmed Al Ghadani, CEO of byanat, commented, "With this milestone investment, our focus at byanat is firmly set on the future. We're committed to scaling our operations, expanding our product offerings, and reaching new markets, ensuring that we remain at the forefront of our industry." byanat has already made waves, won the Machine Learning Award in Data at Oman's 2nd Big Data and Analytics Meet and being among the top 2% accepted into the 500 Global accelerator program in the MENA region. As digital infrastructure becomes more complex, the demand for advanced data analytics solutions grows. With Omantel's support, byanat's innovative platform is poised to tackle these challenges and deliver value.

Omantel Signs an MoU with Hytera to Launch Mission Critical Industry Solution Service Over Mobile Networks at COMEX

Omantel, the leading provider of integrated telecommunication services in the Sultanate of Oman, has signed a Memorandum of Understanding (MOU) with Hytera to launch Mission-Critical Push To Talk (MCPTT) at COMEX-- a communications solution where enterprise customers can send instant voice, video, and multimedia messages and many more additional supporting services. The MoU has been signed during the COMEX event by Eng. Baha Al Lawati, Vice President Enterprise Unit at Omantel, and Cook Wang, Vice President of Hytera Communications, Middle East and Africa. Traditionally, MCPTT has been in use in mission-critical settings where operations cannot be interrupted under any circumstances, such as public safety, transportation, government, and 24/7 operations such as oil and gas, mining, and utilities. The same technology can be used for generic non-mission-critical group communications by shopping centers, stadiums, hospitality, event management agencies, and security staff. Eng. Baha Al Lawati – VP Enterprise Business Unit at Omantel said: "We are thrilled to announce our partnership with Hytera to introduce this pioneering service at COMEX. It is a continuation of our commitment to our enterprise customers to provide them with innovative and dedicated solutions to cater and address their evolving needs in mission critical operations. Our cutting edge MCPTT service empowers enterprises and set new industry alternative solutions combining reliability, security,



and advanced functionality enabling organizations to focus and achieve their business objectives more efficiently. This service will help nearly all industries such as Oil & Gas, Ports, Airports, municipalities, Hospitality, retailers, Construction, and many more." MCPTT is used for instant communication between individuals and among groups, with the ability to have a command and control center to manage the whole operation from a single panel. The big edge is that solution has now gone beyond voice-only communication. Modern PTT has advanced features for increased productivity and safety, such as location features, emergency and priority communication, private calls, ambient calls, media sharing, SDS (Short Data Service), status messages, multimedia messaging, video communication, recording and man down detection feature. The PTT solution is one of many innovative solutions that Omantel hosted at COMEX, including signing major agreements with private and government agencies to accelerate their digital transformation journey. Omantel is the Sultanate's first and leading integrated telecommunications services provider, enabling the digital society to flourish, allowing new ways of doing business, and delivering a world of information, news, and entertainment. While striving to ensure an optimum customer satisfaction, Omantel plays a key social role to provide the required support and assistant to all sectors amongst the Omani society.

Omantel Awards Contracts to Omani Freelance Entrepreneurs to Support SMEs and Freelancers in Oman

Oman Telecommunications Company "Omantel" signed agreements with a group of young Omani male and female freelancers to award contracts for document archiving services. The initiative aims to support the efforts made by the Sultanate of Oman to keep pace with the rapid developments in the business environment in Oman. The business development efforts, led by the Ministry of Commerce, Industry and Investment Promotion, and Oman Chamber of Commerce and Industry, is intended to enhance the role of individual institutions and companies to contribute to the promotion of the national economy. The agreements were signed by Ghassan bin Khamis Al-Hashar, the Acting Chief Financial Officer of Omantel. Speaking about the agreement, Ghassan stressed that Omantel is, as usual, at the forefront of companies seeking to promote initiatives that support the national economy and utilize the capabilities of Omani graduates to empower entrepreneurs, in addition to contributing to the development of the entrepreneurship ecosystem. Omantel's Acting Chief Financial Officer further said "These agreements represent an important milestone for Omantel's Strategic Sourcing & Procurement Division, as this initiative is being launched with the aim to support freelance local business owners by assigning direct contracts for document archiving services." On his part, Ghalib bin Ali bin Hamoud Al Mamari, Acting General Manager of Strategic Sourcing & Procurement at Omantel, said "By awarding direct contracts to this group of freelancers, we will make use of their skills to provide documents and archives management services. After fulfilling the legislative and regulatory requirements, the selected freelancers can offer their services in accordance with the legal framework that was recently announced by the National Employment Program." It is worth mentioning that the introduction of this framework has enabled the Strategic Sourcing & Procurement Division of Omantel Finance Unit to launch such an unprecedented initiative to support medium and small enterprises, business owners, and entrepreneurs. "This initiative is a continuation of support provided during the past period and a prelude to several upcoming initiatives that can be used to explore the skills of young people who possess commercial licenses to practice self-employment from the Ministry of Commerce and Industry and Investment Promotion. According to the regulations in force to register freelancers in this field and with the commitment of the entrepreneurs for self-employment, we will be able to make a solid impact by spreading the culture of self-employment and raising productivity and competitiveness in the labor market" he concluded.

Zain Wins Two Distinguished Awards in Sustainability and Women's Empowerment

Zain, a leading provider of innovative technologies and digital lifestyle communications operating in seven markets across the Middle East and Africa, continues to be recognized for its pioneering endeavors in the areas of Sustainability and Diversity, Equity and Inclusion (DEI). Zain was presented with the Leadership in Sustainability Award 2023; and Championship Award in Women Empowerment 2023 at the annual Global Good Governance Awards recently held in Dubai and organized by Cambridge IFA, a UK-based think tank. The Awards celebrate individuals, governments, public and private sector institutions, and NGOs that exhibit governance and sustainability as their strategic priority. Zain remains one of the most active organizations in the region with respect to delivering meaningful connectivity through its Environmental, Social and Governance (ESG) initiatives, with the company playing a crucial role in empowering the markets

in which it operates to reap the benefits of digital transformation for the benefit of the communities it serves and beyond. The recognition of these prestigious awards is testament not only to how much Zain believes in its purpose, but how relentless the company is in driving systemic change and providing meaningful connectivity to the communities it serves. Zain is among the most engaged organizations across the globe with respect to ensuring its operations are a positive, inclusive force for good, with a commitment to continuing to instill these principles at the heart of the organization.

SUSTAINABILITY

Recently, Zain joined the United Nations (UN) Global Compact initiative, a voluntary leadership platform for the development, implementation, and disclosure of responsible business practices. Annually, the company publishes its sustainability report, where it details the progress and strategic efforts undertaken across Zain's footprint as it continues to execute on its five-year, 2025 Corporate Sustainability strategy. During the course of 2022, Zain cemented the four pillars of its sustainability strategy through a comprehensive engagement process with various stakeholders. This extended to:

1. Climate Change: Decarbonize the business and transition towards Net-Zero by 2050.
2. Operate Responsibly: Embed ESG principles across the entire value chain.
3. Inclusion: Reduce the digital gap.
4. Generation Youth: Build resilience across Zain communities by targeting 16 million children and youth.

WOMEN EMPOWERMENT (WE)

Within the WE gender initiatives under Zain's DEI activities, the company has been working on narrowing the gender divide in leadership roles at the company. With the development of a year-long middle management succession program, Zain is looking forward to drawing closer to 25% of its leadership consisting of women by 2025, against a background of just 14.5% when the program was first introduced in late 2017. Zain firmly believes that the talent, creativity, and passion women bring to their roles is undeniable, and believes developing a WE program to initiate and measure actual progress achieved in this respect over time will reap benefits for the organization as a whole. Notably, Zain is focusing on addressing headcount gaps in technical and revenue-generating divisions through the development of women from STEM backgrounds. During 2022, women made up 42% of Zain's total recruitment, and the company recently revolutionized its staff-friendly Family Leave Policy clauses, reinforcing its position as one of the most impactful DEI organizations in the region, if not the world.

A Regional First: Embracing q Disability Inclusive Environment for All, Zain's Operation in Jordan Provides Mobile Phone Subscriptions in Sign Language

Zain Group announces that it's operation in Jordan has made mobile phone subscriptions accessible via sign language for customers with hearing and visual impairments, in a step that is the first of its kind in the region to provide this service. Zain customers in Jordan who may be visually impaired, blind, hearing impaired, or deaf, will be able to view contracts and understand their terms through an audio-visual video available by scanning a QR Code located in Zain showrooms across the Kingdom. In the near-future, this service will make it easier for customers to identify all the terms and conditions translated into sign language at any time. Zain has decided to position the introduction and development of disability issues for its customers and within the workplace as a priority task that is part of its Diversification, Equity & Inclusion (DEI) vision, by creating the 'We Able' disability inclusive program to meet the needs of all segments of society and is working with organizations and partners who are experts in this field to further strengthen this new strategy. The company is also committed to adopting harnessing technology tools for persons with disabilities, thereby reducing inequalities as stated in the UN's 17 Sustainable Development Goals.

DEI initiatives under the 'WeAble' program across Zain's operations:

• Creation of a sign language digital library for four countries specific sign language, Kuwait, Jordan, Bahrain, and Iraq, aiming to create more sign languages to cover other Zain operations. This library provides high-quality educational

materials offering employee contracts in sign language, while continually training its staff in sign language, thus facilitating their bonding and communication with fellow hearing-impaired colleagues. The library also contains video lessons provided by sign language trainers and experts, and includes a detailed explanation of the vocabulary and basic expressions in sign language.

- Training of 300 employees Groupwide on sign language
- Zain Kuwait added accessible evacuation chair for all its offices
- Zain Jordan added handrails for all ramps and added a new restroom with an automatic door and hosted an inclusive accessible excel training course
- Zain Jordan the first telco in the world with a virtual translator for the deaf on its website and social media channels, using a plugin that adds sign language using interpreting 3D smart Avatars
- In 2015, Zain Jordan launched the Basma+ line, providing complimentary minutes for video calls, as well as technical support services to the deaf and hearing impaired, responding to inquiries
- Launch of GROW program training fresh graduates with disability to prepare them for the workplace that has seen 14 graduates join Zain since the program launch
- Zain Bahrain launched a hotline for People with Disabilities to provide exclusive communication access and have made four retail stores wheelchair friendly, with more in progress.

More on Zain's Disability Inclusion vision

Zain's influential role in society means the company must maintain its pioneering outlook with respect to creating positive change in the workplace and in all other areas of its activities. The company is proud to stand as an example for other corporates to follow and the implementation of the WE ABLE initiative reflects its commitment to develop and implement a sustainable Disability Inclusion program. Zain believes it is time that the contributions that people with disabilities are able to make in our workforces and in society in general be recognized, and is pleased to have the opportunity to raise awareness in this area through its words and more importantly through its actions. As one of the first institutions across the region launching a dedicated department for the areas of DEI and notably its 'We Able' initiative, Zain has entered partnerships with notable entities such as The Valuable 500, as well as being a signatory into the International Labor Organization (ILO) Global Business and Disability Network Charter.

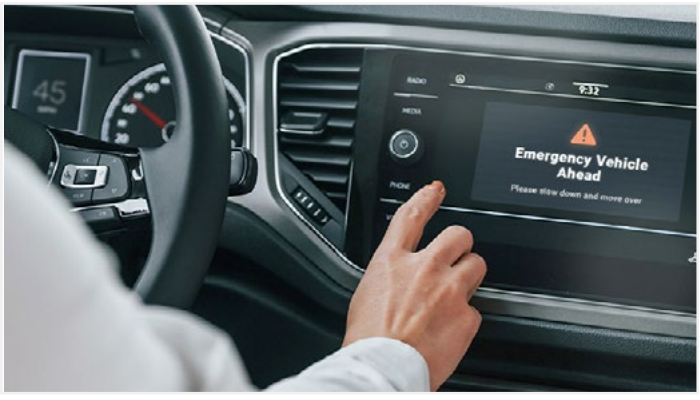
Arthur D. Little Appoints Martin Rauchenwald as Partner in DACH Financial Services Practice

Arthur D. Little (ADL) announced that Martin Rauchenwald has joined the company as a Partner and Leader of its Financial Services (FS) practice in Austria. With 23 years of executive-level experience in the financial services market as both a trusted advisor and banker, Martin has worked across all levels of the industry, from leading large-scale bank transformation programs to being a private equity investor. He will be based in ADL's Vienna office. Prior to joining ADL, Martin has most recently been an Investment Partner at Financial Services Capital Partners in London, a specialist mid-market private equity investor. At the same time, he also held board positions at Barion Payment, Union Financiera de Asturias,

and was a Senior Advisor to Alantra Credit Advisory. Martin has also been Partner at consultant Oliver Wyman, and Co-Founder & CEO of financial markets advisor Ithuba Capital AG. He spent the first 10 years of his career at banking institution UniCredit, holding a series of senior positions there. In his career, Martin has advised over 150 clients, from private sector firms to regulators and industry bodies, and has in-depth, hands-on experience in helping to build and transform companies, from pre-seed start-ups to multibillion financial institutions. Philippe De Backer, Managing Partner at ADL, comments: "We're very happy to welcome Martin into ADL's Global Financial Services team, where I'm sure he will make a tremendous contribution. It is rare to come across someone with such broad expertise in the financial services industry, from helping to fund innovative fintech start-ups to advising major banking institutions on their digital strategy. And as both a self-starter and team player, Martin is sure to be a great fit with ADL's entrepreneurial culture." Martin Rauchenwald, Partner at ADL, adds: "One of the key factors that attracted me to working at ADL is the high-level of internal cooperation between practices and other sector verticals. Sharing of know how within the international FS community at ADL will be vital to bring the most innovative solutions to our cients. As the financial services market continues to evolve throughout the DACH region, there are many opportunities available to help the industry become more responsive and adaptive to the needs of both the modern consumer and 21st century businesses." Martin has an MBA, with a specialization in Banking & Insurance, from the University of Graz, Austria and a degree from the University of Santander, Spain.

AT&T Drives Connected Car Service with HAAS Alert

AT&T continued to evolve its connected car platform, signing a letter of intent to work with specialist HAAS Alert to deliver warnings of hazards to drivers in what it claimed is the first bundle of mobile connectivity with vehicle-to-everything (V2X) software available for vehicle manufacturers. The operator stated the collaboration will remove barriers to cellular V2X capabilities by offering direct integration and activation of a connected software service. AT&T cited benefits in terms of minimizing data costs associated with providing alerts, in addition to the broader boost to safety by helping to protect staff in the emergency services and road building sectors. Digital alert data could also be used to enable advanced driver-assistance systems, and improve navigation by monitoring traffic patterns and road conditions. Cameron Coursey, VP for connected solutions at AT&T, stated the combination of mobile connectivity with V2X software will "permanently improve transportation safety nationwide". The operator shifted its IoT and connected car products and functions into a new organization earlier this year, part of a move to accelerate momentum in the fields.



AST Leases AT&T Spectrum to Boost Sat-to-Phone Play

US operator AT&T took the next steps in a plan to bolster coverage using satellite connectivity, by formalizing a plan to lease spectrum to AST SpaceMobile to enable communication with standard mobile phones. In a filing with the US Federal Communications Commission (FCC), AT&T noted it agreed to lease AST SpaceMobile spectrum in the 850MHz and lower 700MHz frequencies, access the operator stated is required to provide supplementary coverage from space. AT&T offered assurances AST SpaceMobile will not begin using the spectrum until separate applications by the satellite company are approved, though their deal provides access to the frequencies 21 days after the filing, which it made on 10 May. The companies sought relevant waivers to add satellite connectivity to AT&T's mix of mobile access technologies, along with any FCC rules which "may be necessary to permit" AST SpaceMobile's proposed operations. AT&T argued the arrangement with AST SpaceMobile is in the public interest, enabling it to provide services on unmodified handsets. In addition to bolstering its everyday coverage, the operator cited benefits in disaster zones. It also asserted no "harmful interference" will result from AST SpaceMobile using the spectrum, explaining the satellite company's constellation is being "designed to have precise control and management over downlink transmissions". AT&T's leasing announcement comes a matter of weeks after the companies completed a two-way satellite voice call to a standard mobile device in conjunction with Rakuten Group. AST has trial agreements in place with a number of big name operators but a commercial launch with AT&T would be by far its biggest success story to date.

AT&T to Deliver Broadband Access to Lawrence County, IN

Lawrence County, Indiana, announced a project with AT&T* to expand AT&T Fiber to more than 2,300 customer locations. In Northwest Lawrence County, AT&T has been selected to build AT&T Fiber to more than 2,300 customer locations in a project valued at $3.6M. This is in addition to the 700 locations planned as part of the State's Next Level Connections broadband grant program. "This is a great step forward in continuing to improve the quality of life for residents, business owners, first responders and visitors in our community," said Rodney Fish, commissioner, Lawrence County. "Fast connectivity like this is crucial to our day-to-day activities, and we're excited that AT&T was willing to collaborate with us to bring more high-speed broadband here." "Having access to AT&T Fiber will make a huge difference in everything we do," said Shance Sizemore, CEO, Lawrence County Economic Growth Council. "Whether it's entrepreneurs looking to start a business, employees needing great connectivity to work from home or teachers communicating with their colleagues and parents, this project is a welcome boost to Lawrence County." Lawrence County will invest $1.1M, and AT&T will invest $2.5M in the project to provide fiber to Northwest Lawrence County. Plans call for residents and businesses to have access to superfast internet – delivering up to 5-Gig speeds1 with symmetrical upload and download speeds. Consistently fast speeds and increased bandwidth mean customers can connect multiple devices, stream multiple entertainment sources, quickly upload content to social media and experience ultra-low lag for pro-level gaming – all at the same time. Extensive planning and engineering work for this project will begin immediately. The network buildout is expected to be complete in 24 months. "Our purpose is to create connection – a connection to friends, family, work, education, health, entertainment and more," said Bill Soards, president, AT&T Indiana. "Through public-private collaborations like this one with Lawrence County, we're able to act on that purpose, while also helping bridge the digital divide in the community. We're thrilled to be bringing AT&T Fiber here soon, and all of the connectivity benefits that come along with high-speed broadband." AT&T has extensive experience deploying fiber-optics across Indiana. In fact, more than 540,000 locations in the state have access to AT&T Fiber today. Residents and businesses can learn more about AT&T Fiber at att.com/fiber and can sign up to be notified when service will be available at their address at att.com/notifyme. AT&T is working to roll out AT&T Fiber through public-private partnerships in communities across the country and to further close the digital divide by encouraging adoption and offering affordable internet solutions. 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 a month on qualifying Tribal lands) to reduce the cost of broadband service and can be applied to AT&T Fiber, where available. Or use it toward Access from AT&T, offering speeds up to 100Mbps for $0 after the ACP benefit is applied. After confirming ACP eligibility, those who qualify can go to att.com/getacp or call us at 866-986-0963 to sign up for service. Have your ACP application ID handy.

AT&T and Public Library Association Collaborate to Increase Awareness and Adoption of Federal Broadband Benefits

AT&T and the Public Library Association (PLA) have launched a free self-paced online course to educate parents, caregivers and families about the federal broadband benefits available to qualifying households for discounted internet service from participating providers. To help bridge the digital divide, AT&T and PLA collaborated to develop the easily accessible and relatable course that provides an in-depth overview of the Affordable Connectivity Program (ACP), documents needed to apply, the process of applying, and how to use the benefit, if eligible. The National Telecommunications and Information Administration (NTIA) found that one reason why one-fifth of U.S. households are not online is because of concerns about cost and affordability. Yet only 17 million households, representing an estimated 35% of eligible of households, have signed up for ACP to receive up to $30/mo. off their internet or wireless service, or up to $75/mo. if living on qualifying Tribal lands. According to research done by the Benton Institute, households located in communities with a public library enroll in ACP at a higher rate than communities that do not. That's why AT&T and PLA are also working together to bring in-person ACP workshops to public libraries. With support from AT&T, public libraries across the country now have access to workshop materials through DigitalLearn, as well as incentives for libraries to host ACP and other digital literacy workshops. The online course is available now through AT&T ScreenReady and PLA's DigitalLearn in English and Spanish. With support from AT&T, 50 libraries will be selected by PLA to provide in-person ACP workshops in the

community. Up to 215 libraries will also be selected to provide in-person digital literacy workshops teaching basic technology skills. Library patrons can check with local libraries to learn about upcoming workshops supported by AT&T, which will begin in August. The ACP course is the newest in a curated series of digital literacy courses offered by AT&T and PLA to help bring technology confidence and digital literacy skills to families and library patrons across the country. The initiative is part of the AT&T Connected Learning initiative and our 3-year $2 billion commitment made in 2021 to address the digital divide through investments in internet accessibility, affordability and the safe adoption of technology. "We recognize it takes intentional collaboration to remove barriers to help people get connected," said Mylayna Albright, assistant vice president of corporate social responsibility, AT&T. "That is why we are proud to work with the Public Library Association to meet people where they are and provide access to relatable, easy-to-follow resources which help them get the connectivity they need." "My top priority is to help PLA to center equity, diversity, inclusion, and social justice. A large part of our equity work revolves around digital equity—equitable access to information, devices, and reliable high-speed internet so that everyone can fully participate

in today's society," said Dr. Maria McCauley, PLA president and director of libraries, Cambridge Public Library. "Communities have long relied on their local public library as a trusted source for getting them connected online. With the support from AT&T, the new PLA DigitalLearn course and workshop materials will not only help patrons get the information and support they need while at the library, but also get them enrolled in the ACP so they can afford to get connected at home."

AVAYA
Experiences That Matter

Market-Leading Customer Experience Company Avaya Enters Next Chapter of Accelerated Growth and Innovation

Avaya Holdings Corp. ("Avaya" or the "Company"), a global leader in customer experience solutions, today announced that it has successfully completed its financial restructuring and emerged from the Chapter 11 process with a growth-oriented capital structure that includes approximately $650 million in liquidity and a net leverage ratio of less than 1x. This milestone completes a critical step in the Company's business transformation. Alan Masarek, Avaya's Chief Executive Officer, said, "Today, we turn the page and enter a new future for Avaya, our people and our customers. We are excited to fully realize the hard work we've put into our business transformation. We are moving ahead with significant financial resources to accelerate investment in our portfolio as we continue delivering innovation without disruption to our customers. Our customers are at different stages of their cloud journey. They want to move at a pace that meets their business needs – and in a way that allows them to adopt advanced functionality without business disruption. Avaya's new, streamlined product roadmap was intentionally designed to do just this, incorporating input from our customers about the capabilities most meaningful to them. At a time when innovation has never been more important to an organization's success, we are proud to be an answer to our customers' most pressing challenges." Avaya is focused on building on its iconic brand, global customer footprint and massive partner ecosystem to deliver innovation without disruption on a global scale. The Company's product innovation investments will continue to focus on the Avaya Experience Platform, which enables organizations to enhance their customer experience capabilities across myriad communications channels. Since the start of the year, the Company has rolled out more than 150 new product features and enhancements across its portfolio and launched Avaya Enterprise Cloud, a dedicated instance of Avaya's core contact center, collaboration and unified communications software solutions for large enterprises. Avaya remains poised to capitalize on its product development momentum and address the current and future needs of its customers. Mr. Masarek continued, "We are also pleased to welcome a new Board of Directors with extensive industry and financial leadership experience that will help Avaya usher in a new era of growth and operational excellence. Our incoming Board members bring decades of relevant expertise, insights and skillsets to support Avaya as we invest in driving the next wave of innovation in enterprise communications and providing our customers and partners with true omnichannel customer experience solutions."

Avaya ENGAGE® 2023 Announces Guest Speakers: Chef and Humanitarian, José Andrés; Entrepreneur and AI Thought Leader, Rana El Kaliouby, PhD; Explorer and Performance Coach, Mark Pollock

Avaya, a global leader in customer experience solutions to enhance and simplify communications and collaboration, today announced José Andrés, Rana el Kaliouby, PhD, and Mark Pollock will be featured presenters at Avaya ENGAGE® 2023. Along with program emcee Katie Linendoll, a global technology consultant, these compelling speakers will inspire attendees to drive impactful change within their organizations recognizing that each individual, regardless of their role, can influence every customer experience. Hear these keynote sessions live at this year's annual Avaya user conference held June 18-21 at the Walt Disney World Swan and Dolphin Resorts Orlando, Florida. Hosted by Avaya and the International Avaya User Group (IAUG), Avaya ENGAGE 2023 will feature:

- José Andrés: Internationally recognized chef, humanitarian, and restaurateur, Andrés is known for his groundbreaking, avant-garde cuisine served in his award-winning restaurants across the country. He will discuss how a culture of innovation and creativity not only leads to personal and organizational success, but also a better tomorrow for all. Andrés is a two-time recipient of the coveted title "100 Most Influential People" by Time Magazine.
- Rana el Kaliouby, PhD: Egyptian-American scientist, entrepreneur, investor and an AI thought leader on a mission to humanize technology before it dehumanizes us. El Kaliouby is the Deputy CEO at Smart Eye and an executive fellow at the Harvard Business School where she teaches about AI and startups. Her bestselling memoir, Girl Decoded: A Scientist's Quest to Reclaim Our Humanity by Bringing Emotional Intelligence to Technology follows her journey, growing up in the Middle East and moving to the United States to become an entrepreneur and Emotion AI pioneer.
- Mark Pollock: Unbroken by blindness in 1998, Pollock became an adventure athlete competing in ultra-endurance races across deserts, mountains, and the polar ice caps including being the first blind person to race to the South Pole. Just over a decade later in a fall from a second story window, Pollock became paralyzed. Author of 'Making It Happen', Mark is the subject of the acclaimed documentaries 'Blind Man Walking' and 'Unbreakable – The Mark Pollock Story'. He has been awarded honorary doctorates by The Royal College of Surgeons in Ireland and also from Queens University Belfast.
- Katie Linendoll: is an Emmy Award-winning TV personality, consumer technology expert, and one of the leading women in the technology industry. She makes regular appearances as a contributor on TV in digital segments and series such as the TODAY Show, Rachael Ray, and The Weather Channel. Linendoll is this year's Avaya ENGAGE emcee. She has been named a Silicon Valley Visionary and leads a faith-filled, active lifestyle while also devoting her time to select philanthropic causes in healthcare and with retired K9s and U.S. veterans.

Avaya ENGAGE serves as an epicenter where customers and partners convene who are shaping the future of communications technology. " We believe that the future of customer experience is converged, and we are excited to share our visionary outlook at Avaya ENGAGE," said Alan Masarek, Avaya CEO. "I invite all of you to join us this year to learn how we are empowering our customers and partners to create the best possible experiences."

CMI Invests to Drive the Development of the Digital Economy in MEA

5G networks will account for nearly a fifth of mobile connections in the Middle East and Africa (MEA) by 2025, and almost half of connections in the Gulf Cooperation Council (GCC) states, according to the GSMA. With the backing of China Mobile, China Mobile International (CMI) remains committed to the region, providing global network resources and integrated solutions to help carriers and businesses tap into the opportunities that 5G will bring. As one of the industry leaders, CMI is connecting the world and driving global adoption of 5G. Its extensive global infrastructure supports customers in MEA with reliable, scalable and resilient network resources. The 45,000-km 2Africa submarine cable is an ambitious project to interconnect Africa, Europe (eastward via Egypt) and Asia (via Saudi Arabia). It was announced by CMI and other partners in May 2020, with 26 out of a total of 46 landings completed by February 2023. When 2Africa goes live in 2024, it will deliver more than the total combined capacity of all subsea cables currently serving Africa, with a design capacity of up to 180 Terabits per second (Tbps). The only Chinese company investing in the project, CMI is committed to the further growth of 4G in MEA and the continued roll-out of 5G and fixed broadband services. Its mission is to help bring connectivity to underserved and rural areas across the region while enhancing network resilience and global connectivity to benefit businesses and individuals throughout MEA. As a gateway to international connectivity, the 2Africa cable will also help to drive the upgrade and expansion of telecommunications networks in the region. It will offer customers seamless links between Africa and Europe, further interconnecting with CMI's SEA-ME-WE 5 (SMW-5) and Asia-Africa-Europe 1 (AAE-1) subsea cable resources to extend connectivity to Asia. This will support the development of a thriving internet ecosystem, especially for underserved communities across Africa. 2Africa is an important milestone in CMI's global development strategy. Offering ample capacity and faster transmission will allow CMI to help the nations of MEA to further develop their digital economy today and in the future. CMI continues to enhance regional telecom infrastructure in MEA by investing in network resources and expanding its footprint to better serve local customers and support business development. CMI currently has 80 submarine and terrestrial cables that provide total network capacity of over 123T. These include 15 submarine

cables and 23 terrestrial cables in which CMI has directly invested, such as the 20,000-km undersea SMW-5 cable between Egypt and Singapore. In addition, more than 30 of CMI's 232 Points of Presence (PoPs) are located in the Middle East and major African countries, including UAE, South Africa, Kenya and Nigeria. Together with CMI's 80 plus cloud connect PoPs, this creates a strong global network that provides direct internet access and internet transit services for MEA at lower cost. On March 7, 2023, CMI announced the successful launch of its Oman Muscat MC1 PoP. CMI's second PoP in Oman, it is located within the carrier-neutral Equinix MC1 data center in Barka. This data center is also a landing station for multiple submarine cable systems, reinforcing the country's importance as a network hub bridging Asia, Africa and Europe. In coming years, the Middle East will benefit hugely from the introduction of developments like smart city technologies, digital financial services and the Internet of Vehicles (IoV). CMI continues to work with partners like Zain KSA, Etisalat Egypt and Master Power Technologies etc. in driving the development and adoption of 5G, IoT and IDC solutions to boost digital transformation and advance the region. With telecom operators and solutions providers in MEA building the infrastructure and solutions to make innovations possible for consumers, business and industry, CMI is delighted and dedicated to working with partners across the region to help nurture the ecosystem for a smarter and more connected future. Our investments in collaboration and infrastructure in MEA underscore the region's importance to CMI's vision of a digitalized future where the global information civilization is an empowering reality for all.

Mobile Number Portability is Widely Implemented in The Americas, Whereas Fixed Portability is not Available in Four of the Eleven Countries Studied

All the countries covered in Cullen International's benchmark on number portability regimes have implemented mobile number portability. All surveyed countries use a centralized database managed by an independent database administrator with a direct routing solution to manage the portability process. Fixed number portability is available in Argentina, Brazil, Canada, Chile, Mexico, Peru, and the United States. Chile and Canada implemented a complete portability, meaning that a subscriber can port numbers

between fixed and mobile networks. The Peruvian government launched a public contest to select a manager of the centralized number porting database for the period from April 2024 until April 2029. In Colombia, the telecoms regulator, CRC, consulted on modifying the reasons for rejecting number porting when there is fraud identified in the process. Cullen International's benchmark provides an overview of the mobile and fixed number portability regimes and their implementation across the Americas.

Cisco Accelerates Full Stack Observability Strategy with Customer Digital Experience Monitoring

Uniquely positioned to deliver industry-leading Full-Stack Observability to customers, Cisco announced a new OpenTelemetry-based integration of Cisco AppDynamics application observability and ThousandEyes network intelligence. This integration is bi-directional, with data exchanged simultaneously between both solutions, in real time. User experience has increasingly become a key performance indicator at the boardroom level. Organizations are working to ensure they can elevate digital experiences at scale via the applications that are at the heart of all business interactions today. That said, user experience can be impacted by many factors. The key is to find the root cause of impact as soon as possible and address the issue before it reaches the end user and hurts the overall performance of the application and ultimately the business. Cisco's solution provides insights into both the application and the network, with internet connectivity metrics for application operations and real-time application dependency mapping for network operations. The solution is automatically available without further installations, drives powerful customer digital experience monitoring from the combined application and network vantage points, and delivers differentiated business outcomes. It significantly reduces Mean Time to Resolution (MTTR), closes observability gaps with actionable recommendations and helps teams prioritize network remediation based on business impact/criticality. "Our customers are committed to delivering the best digital experiences for their businesses. However, as digital experiences get simpler for the consumers, they get more complex for companies," said Liz Centoni, EVP, Chief Strategy Officer, and GM of Applications. "Customer Digital Experience Monitoring seamlessly brings together our industry leading application observability and our unparalleled network intelligence, so that customers can uncover all the application and network dependencies not visible before." Cisco's Customer Digital Experience Monitoring solution also allows organizations to break down the barriers to meaningful collaboration that can exist between Infrastructure & Operations teams, Application Developers, SecOps and DevSecOps teams; all of whom now need to work more closely together to ensure success. This helps organizations to move fast and focus on what matters most – driving revenue, elevating user experience, managing risk and reducing costs all while reducing tool sprawl. The ability of companies to get a complete picture of their applications' health and users' journeys positions businesses to make better-informed decisions and resolve issues quicker; ultimately leading to better user experience and improved business outcomes. This bi-directional integration further strengthens Cisco's ability to deliver world class customer digital experience monitoring especially when coupled with the industry leading Real User Monitoring (RUM) that Smartlook offers. In April Cisco announced the intention to acquire Smartlook, a company that excels at analyzing and contextualizing end user digital behavior. Smartlook, the bi-directional integration and the innovations Cisco continues to deliver fulfill the expectations customers have to be able to enjoy end-to-end monitoring of an experience for user accessing applications and services hosted anywhere from any location using any device. Cisco remains committed to simplifying the buying experience as well. In February Cisco Business Risk Observability was launched and is included in the Cisco FSO Essentials bundle, which also includes critical full stack observability capabilities. In addition, the company is also announcing the Cisco FSO Advantage bundle. This bundle adds real-time ingestion of network intelligence metrics into application observability and real-time application dependencies for network operations. This offer helps customers deliver the end-to-end visibility, correlated insights, and recommended actions, tied to business context, across application monitoring, application security, the network and the internet. Only Cisco can combine the required vantage points of applications, networking and security at scale that can power true Full-Stack Observability.

Cisco Unveils Next-Gen Solutions That Empower Security and Productivity with Generative AI

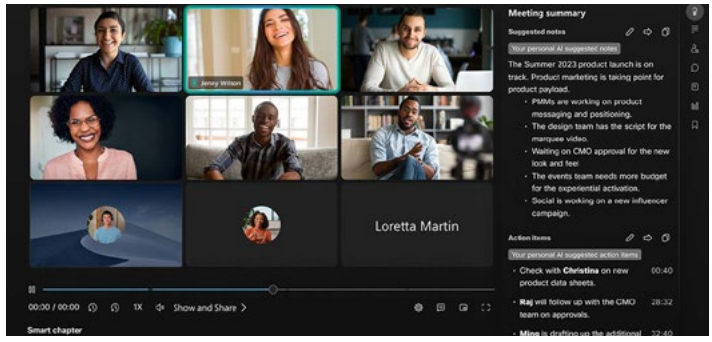
Cisco (CSCO) announced it is reimagining the way people work with new, powerful generative AI technology. Cisco will harness large language models (LLMs) across its Collaboration and Security portfolios to help organizations drive productivity and simplicity for their workforce. Expectations are at an all-time high – organizations are grappling with how to deliver unrivaled experiences for hybrid workers, while safeguarding their businesses from sophisticated cyber threats. According to Cisco's 2023 State of Global Innovation Study, IT professionals rank generative AI as the technology most likely to have a significant impact on their business, with 85% of those saying they're prepared for its impact. Cisco recognizes the important role generative AI will play in advancing the future of work and is committed to providing hybrid workers with an efficient, safer, and more productive, work experience. "Generative AI will quickly become pervasive as we see businesses and workers embrace the technology to become materially more productive," said Jeetu Patel, Executive Vice President and General Manager, Security and Collaboration, Cisco. "At Cisco, we've been using AI for years. Now we're unveiling how we're incorporating generative AI into our existing products, helping customers drive real value to unlock the most secure, unrivaled work experiences possible."

New Summarization Capabilities in Webex by Cisco With every work interaction being hybrid, employees, and customers need collaboration experiences that empower them to do their best work. Within the Webex Suite, new summarization capabilities that help people get up to speed in seconds will include:

- "Catch Me Up" will allow users to quickly catch up on missed interactions, including meetings, calling, chats and more.
- Intelligent meeting summaries with key points and action items. Users can opt in to automatically generate the most important elements of a Webex meeting, extract the key points, and capture action items with owners. This will be a huge time-saver for attendees and people unable to join a meeting – eliminating the need to listen to a recording or read through transcripts.
- Summaries in Vidcast, the company's video messaging tool. This capability will produce highlights and chapters so viewers can navigate to the most important parts of the video quickly.
- New conversation summaries in Webex Contact Center will provide agents with a fast, automated way to consume long-form text from digital chats with customers as well as facilitating post-call wrap-up and resolution with customers. For example, if a customer is escalated to a call with a human agent, they expect that agent to be informed and not have to repeat their frustrations. Chat summaries provides the agent with a clear summarization of issues and resolutions already explored via self-service and a summary of the call to both the agent and customer once it ends.

Moving Security from Complex to Conversational

Cisco is investing in cutting-edge innovations in artificial intelligence and machine learning that will augment security staff by simplifying operations and increasing efficacy. Further delivering on its Security Cloud vision, Cisco is previewing new generative AI capabilities to simplify policy management and improve threat response. Effective security policy creation and management is an



oftentimes extremely complex but critical function of cybersecurity hygiene. There is little room for error and the process of making simple edits that won't interfere with or override previous rules is extremely time consuming and technically challenging. The volume, inconsistency, and complexity of maintaining all of these policies across all of these systems creates a significant risk that opens the door for attacks. The Cisco Security Cloud will leverage a generative AI Policy Assistant to address this problem by enabling security and IT administrators to describe granular security policies and evaluate how to best implement them across different aspects of their security infrastructure. This week's preview showed how the Cisco Policy Assistant can reason with the existing firewall policy set to implement and simplify rules within the Cisco Secure Firewall Management Center. It is the first of many examples of how generative AI can reimagine policy management across the Cisco Security Cloud. Augmenting Analysts with Machine Speed and Scale Threat detection and response is another complex and high stakes responsibility of the security operations where time is of the essence and analysts must rapidly gain understanding of complex systems at machine scale. Cisco's security operations center (SOC) Assistant will augment security analysts with the context to make the right decisions at the right time. The SOC Assistant will provide a comprehensive situation analysis for analysts, correlating intel across the Cisco Security Cloud platform solutions, relaying potential impacts, and providing recommended actions. Significantly reducing the time needed for SOC teams to respond to potential threats. Cisco will preview its generative AI solution for Webex and Security Cloud onstage at Cisco LIVE 2023. Webex summarization, policy management and SOC Assistant Summaries will be available by the end of calendar year 2023. The additional SOC Assistant features will be available in the first half of calendar 2024.

Cisco's Approach to Generative AI

For years, Cisco has leveraged AI with audio, video, natural language understanding, and analytics to create unrivaled experiences for Webex users – with the security Cisco is known for. New enhancements in LLM and generative AI are advancing this even further to deliver unrivaled hybrid work experiences. Webex has established a first set of principles, consisting of multi-modal support, permissions, privacy, and accuracy for its enterprise-grade AI. This includes only using data that individuals already have permission to access, based on the privacy and security rules of that specific data source.

Cisco Launches Full-Stack Observability Platform

Cisco announced the launch of a new Full-Stack Observability Platform—a vendor-agnostic solution that harnesses the power of the company's full portfolio. It delivers contextual, correlated, and predictive insights that allow customers to resolve issues more quickly and optimize experiences, while also minimizing business risk. This industry-leading offering enables a new observability ecosystem that brings data together from multiple domains including application, networking, infrastructure, security, cloud, sustainability, and business sources. "Full-Stack Observability is critical in today's digital-first business environment," said Liz Centoni, Executive Vice President, Chief Strategy Officer, and General Manager, Applications. "Cisco Full-Stack Observability brings together network intelligence, security insights, and application observability across the multi-cloud environment and the full technology stack to enable enterprises to deliver unmatched digital experiences with deep business context." Cisco's FSO Platform is focused on OpenTelemetry and is anchored on Metrics, Events, Logs, and Traces (MELT), enabling businesses to seamlessly collect and analyze MELT data generated by any source. The Cisco FSO Platform is also designed as a unified, extensible platform, allowing developers to build their own observability solutions, empowering an ecosystem of customers and partners.

Cisco FSO Platform Applications: Cloud Native Application Observability

Cloud Native Application Observability is the premier solution delivered on Cisco FSO Platform. It helps customers achieve business outcomes, make the right digital experience related decisions, ensure performance alignment with end-user expectations, prioritize, and reduce risk while securing workloads. In addition to Cloud Native Application Observability, the first set of modules on Cisco's FSO Platform are:

- Cost Insights: Provides visibility and insights into application-level costs alongside performance metrics, helping businesses understand the fiscal impact of their cloud applications, while also supporting sustainability efforts.
- Application Resource Optimizer: Provides visibility into Kubernetes workload resource utilization, so businesses can maximize resource usage and reduce excessive cloud spend, helping them meet financial targets and sustainability goals.
- Security Insights: Generates an application-based business risk score to help DevOps and SecOps teams to prioritize and eliminate vulnerabilities on cloud native applications or services that have a high likelihood of exploitation.
- Cisco AIOps: Visualize contextualized data relevant to infrastructure, network, incidents, and performance of a business application, all in one place. Simplifies and optimizes IT's operational needs.

Orby Elevate Selects EUTELSAT 117 West A for DTH TV Distribution Across the US

Orby Elevate offers a mix of secular and religious video services to US-based customers. Located at 116.8° West, EUTELSAT 117 West A features state-of-the-art technology providing hemi coverage in both C and Ku bands, as well as high-power regional coverage in Ku-band over North and South America. This will enable Orby Elevate to leverage EUTELSAT 117 West A's exceptional throughput over the US territory to launch its first major mainstream English language DTH bouquet in what is a very significant market in terms of audience size and consumer appetite. Ricardo Dias, Orby Elevate Interim CEO, said: "It is a great opportunity to leverage the already existing infrastructure developed by the original iteration of Orby and the great coverage of the powerful EUTELSAT 117 West A satellite into a platform that allows family-friendly content to reach homes nationwide and at a reasonable cost." G. Jim Carroccia, Eutelsat North America Media Sales Director, commented: "We are delighted that Orby Elevate has selected EUTELSAT 117 West A for its first major mainstream English language DTH bouquet to launch in the U.S. market. This ground-breaking deal showcases the important role that satellite continues to play in TV distribution. We look forward to supporting Orby Elevate as their innovative business and offerings continue to grow."

Huawei Unleashes the Power of Data and Proposes Ways of Evolving Storage in the Yottabyte Era at Huawei IT Day 2023

During the Huawei Middle East & Central Asia Tech Carnival 2023, Huawei successfully held the Huawei IT Day under the theme 'Unleash Data Power, Towards the Yottabyte Era' (a yottabyte is equal to a quadrillion gigabyte). Reinforcing its leadership in storage technology, Huawei shared its latest multi-cloud-oriented storage strategy at the Huawei IT Day. President David Shi, Huawei Enterprise Middle East and Central Asia, observed that more and more customers and partners are choosing Huawei storage. "Our biggest strength is that we keep innovating to build leading data storage service capabilities driven by technology and customer requirements, with the increasing number of storage-related patents demonstrating our commitment to evolving this industry. That said, enterprises' data infrastructure faces three key challenges: evolving data, new-age applications, and ransomware attacks. Huawei is committed to building a solution that caters to all of them, including managing diverse data, rapidly upcoming applications and defending all the data against ransomware attacks." Countries across the Middle East and Central Asia are prioritizing the digital transformation of their public and private sector organizations, preparing for the future intelligent world. This digital transformation will be pivotal for the region's economic development and social progress. However, data resilience remains a constant threat for enterprises globally, with ransomware attacks proving particularly destructive. Andrew Beklemishev, Vice President of IDC CIS, shared valuable insights on ransomware resilience strategies and data protection best practices to achieve reasonable immunity from cyber threats. An IDC/Huawei whitepaper released earlier this year showed two-thirds of global organizations were hit by ransomware attacks in 2022. Further, on average, businesses were disrupted for five days due to ransomware attacks last year. Therefore, traditional approach to security can't cope with the diverse infrastructure required by digital businesses. Artem Pavlenko, IT Infrastructure Director, Halyk Bank, shared a case study about how they are building a reliable, trusted and intelligent IT infrastructure using Huawei enterprise storage solutions. He said, "Huawei's OceanStor Dorado storage solution has helped Halyk Bank achieve our strategic objectives and new requirements for IT infrastructure, enabling us to be cloud-ready and boosting our performance by over 200%." Meanwhile, Yahya Kassab, Senior Director and General Manager – KSA, Gulf & Pakistan, Commvault – Huawei's Data Protection alliance partner – discussed data protection in the new era and how the company is working together with Huawei. At the event, several experts walked the audience through the latest innovations in next-generation storage architecture. They shared insights on the storage industry and how enterprises can unleash the power of data with all-flash. Customers heard how Huawei is working with partners to drive business resilience and also got a glimpse of the future of storage with the latest Huawei lineup of storage products for smaller businesses. At this year's event, the global ICT leader highlighted its green and secure all-flash data center solution and demonstrated its product innovation in the commercial market by launching the industry's first entry-level storage combination with A-A Architecture – Dorado 2000 and OceanProtect X3000.mHuawei also showcased the Huawei OceanStor Pacific series, elaborating on how it unleashes massive data value and embraces new data service loads in the Yottabyte era. The Huawei IT Day was held on the second day of the annual flagship Huawei Middle East & Central Asia Tech Carnival, which took place in Almaty, Kazakhstan, for the first time, from June 5 - 7.

Huawei Wins Bulk of Latest China Mobile 5G Contract

China Mobile awarded construction contracts for two 5G networks valued at nearly CNY7.8 billion ($1.1 billion), with Huawei to build more than half the base stations between 2023 and 2024, and small shares going to Ericsson and Nokia, C114.net reported. The first project covers about 63,800 base stations using 2.6GHz to 4.9GHz spectrum and the second 23,141 in the 700MHz band in a joint effort with China Broadnet. C114.net estimated Huawei won contracts worth CNY4.1 billion, involving about 45,000 base stations or about 52 per cent of the total. Based on the news portal's calculation, ZTE secured a near 27 per cent share valued CNY2.1 billion; Ericsson 8.2 per cent (CNY630 million); Datang Mobile 7.1 per cent (CNY550 million); and Nokia 5.2 per cent (CNY400 million). In March, China Mobile said it planned to add 260,000 5G base stations this year for a total of 1.6 million. The China Mobile deal comes at a time when Huawei is focused on its domestic market in the face of ongoing US trade sanctions, which curbed its smartphone business and 5G deployments in many countries. Huawei won a 57.3 per cent share of a CNY37.1 billion 5G contract China Mobile awarded in 2020, with ZTE taking 28.7 per cent. The vendor later took a 55 per cent share of a joint China Unicom and China Telecom standalone 5G network contract worth CNY32.3 billion, with ZTE awarded 33 per cent, Ericsson 10 per cent and Datang Mobile 2 per cent.

CloudWAN is a Catalyst for Future Networking Solutions in the Middle East

Digital transformation is the cornerstone of economic growth and innovation across the Middle East. However, as digital transformation advances, enterprise services will pose new requirements on data communication networks. First, massive numbers of IoT connections demand ultra-broadband and ubiquitous connectivity. Second, enterprise branch services are gradually moving to the cloud, requiring networks to provide flexible deployment and fast cloudification capabilities. Third, new services need to be rolled out on a large scale and services need frequent adjustments, requiring networks to be agile, secure, and efficient. Finally, video conferencing is becoming commonplace, meaning that networks have to provide deterministic experience assurance. According to the global ICT leader, Huawei, as digital transformation continues to spread across industries, Wide Area Networks (WANs) have to change, to embrace enterprise cloudification and transform Internet Protocol (IP)-based production networks. According to Gartner, more than half of enterprise IT spending, equivalent to almost $1.8 trillion, in key market segments will shift to the cloud by 2025. These key categories include application software, infrastructure software, business process services and system infrastructure markets. Furthermore, given the maturity of IP technologies — such as Service Routing over IPv6 (SRv6) and Flexible Ethernet (FlexE) — allied to the flexible deployment and converged transport advantages of IP networks, services that used to be carried by multiple Synchronous Digital Hierarchy (SDH) production networks can now be carried over a single IP network, slashing Total Cost of Ownership (TCO) for enterprises. To address these challenges, Huawei launched its cutting-edge CloudWAN solution. This solution is a next-generation agile, intelligent, and secure WAN solution based on IPv6 Enhanced — a digital infrastructure intelligent foundation. The CloudWAN solution uses key technologies such as SRv6, network slicing, intelligent cloud-map algorithm, and In-situ Flow Information Telemetry (IFIT). During the Huawei Network Summit held during the

Middle East & Central Asia Tech Carnival in Almaty, Kazakhstan, experts from Huawei Enterprise Router Domain and the IETF Internet Architecture Board (IAB), along with representatives from governments, power industries, and oil and gas industries in the Middle East & Central Asia region, gathered at the CloudWAN Workshop to discuss network standards innovation and industry digital transformation. Mr. Wu Lianhe, President of Huawei Enterprise Router Domain, told attendees that as the global economy gradually recovers, he believes that a new round of scientific and technological revolution and industrial transformation will gain momentum and that digital technologies will develop rapidly. Intelligent cloud-networks have been facilitating the transformation and upgrade of numerous industries, and digitalization has become the driving force for enterprise growth. Looking ahead, Huawei will continue to pursue technological innovation and excellence.

Huawei Data Communication Research & Standards

During the event, Zhang Liang, Head of Huawei Data Communication Research, highlighted Huawei's breakthroughs with fundamental technologies in fields such as software, hardware, traffic forwarding, AI, and algorithms. These key capabilities deployed on resource highlands help address challenges through continuous innovation. In terms of Huawei's contributions to standards and IPv6 Enhanced innovation logic and development, Mr. Zhu Keyi, Head of Huawei Data Communication Standards, highlighted Huawei's continuous investment in data communication solution R&D and its contributions to industry development through standards work. The innovative IPv6 Enhanced solution lays a solid foundation for IP networks, provides better connectivity, and enables on-demand addition of network functions, delivering the ultimate network-service collaboration experience. IETF IAB member Wu Qin also introduced Huawei's autonomous driving network. He shed light on Network Digital Map, which serves as an intelligent cockpit to provide closed-loop management covering network planning, construction, maintenance, optimization, and operations through network perception, analysis, decision-making, and topology collection.

Industry Digital Transformation Innovations and Applications

Mr. Bao Lei, Chief Architect of Enterprise Router Solutions, Huawei shared innovative applications in the government and power sectors at the event. He explained that IPv6 Enhanced is an IP network innovation system oriented to the 5G and cloud era. It includes protocol innovations such as network slicing, in-band flow measurement, and service-driven network, as well as technology innovations represented by network intelligence, such as network analysis, self-healing, and

automated optimization. This innovation system comprehensively improves IPv6 capabilities in six dimensions: ubiquitous connectivity, ultra-high bandwidth, automation, deterministic quality, low latency, and security. IPv6 Enhanced-based innovations well meet industry network requirements, making it possible to build experience-centric full-service networks. During the workshop, experts from various parties engaged in a lively discussion regarding the development of IFIT in-band flow measurement and how to guarantee the latency of slices in production network scenarios. Additionally, they delved into the future direction of network development and industry prospects.

ITU-ARCC and Huawei to Jointly Promote Public-Private Cybersecurity Collaboration

The ITU Arab Regional Cyber Security Center (ITU-ARCC) and Huawei have signed an agreement to jointly promote public-private partnerships (PPPs) in cybersecurity. The cooperation agreement was signed by Eng. Badar Al Salehi, Director General, Oman National CERT &Head of the ITU Arab Regional Cybersecurity Centre (ITU-ARCC) representing ITU-ARCC and Shunli Wang, VP of Huawei Middle East & Central Asia during COMEX 2023, Oman's official technology, communications, innovation and digital transformation show. The signing of this (ToR) marks a new era of cooperation between the regional cybersecurity organization ITU-ARCC and global ICT leader Huawei to promote Arab world cybersecurity knowledge transfer, sharing of best practices and capacity building. The agreement seeks to strengthen the collaboration among Arab cybersecurity experts to effectively address threats and incident response in cyberspace. It also aims to nurture an open, mutually beneficial and neutral cybersecurity ecosystem through inclusive public and private partnerships. Further, both entities seek to jointly support efforts to establish a secure, prosperous and sustainable Arab digital economic ecosystem. Commenting on the role of the agreement in supporting cybersecurity, Eng. Badar Al Salehi said: "The cybersecurity market is witnessing steady growth, reaching more than $270 billion, and is expected to reach $600 billion by 2025. This agreement comes in line with the Regional Cybersecurity Week launched by the Sultanate last November, through which we aim to develop the cybersecurity industry in the Arab countries." Aloysius Cheang, CSO of Huawei Middle East & central Asia, said: "Cyber defense is truly a team sport where all stakeholders have a role in protecting our ICT infrastructure. Further, deploying one solution to fit all cybersecurity scenarios is impossible, requiring unified standards and technological measures covering the whole cybersecurity ecosystem. With that in mind, we at Huawei are honored to partner with the ITU-ARCC, to support its efforts in addressing the cybersecurity challenges by providing secure and trustworthy products, solutions, and services." The ITU Arab Regional Cyber Security Center (ITU-ARCC) was established in December 2012, a joint effort by the International Telecommunication Union (ITU) and the Sultanate of Oman, represented by the Ministry of Transport, Communications and Information Technology with a vision of creating a safer and cooperative cybersecurity environment in the Arab Region and strengthening the role of ITU in building confidence and security in the use of

information and communication technologies in the region. In line with the ITU Global Cybersecurity Agenda (GCA) objectives, the ITU-ARCC acts as ITU's cybersecurity hub in the region, localizing and coordinating cybersecurity initiatives. ITU-ARCC is hosted, managed and operated by Oman National CERT (OCERT). Huawei believes cybersecurity and privacy are common challenges that all stakeholders – including governments, industry and standards organizations, enterprises, technology suppliers, and consumers – have a shared responsibility to confront. Huawei actively works with governments, customers, and industry partners to address cybersecurity and privacy challenges, thereby reinforcing the need to treat cybersecurity as a team sport and maintaining an open and collaborative environment that encourages innovation and transparency. Through these efforts, Huawei advocates for cybersecurity to be viewed as the key to protecting our digital assets and leveraging it to support business.

Huawei Cloud Launches New AI Solutions with a Preferred Cloud for Middle East & Central Asia

Huawei Cloud held the TechWave Summit Middle East & Central Asia 2023 on June 7 in Almaty, Kazakhstan, where it launched a range of new AI solutions, released a Pre-Trained Models White Paper and announced a new Huawei Cloud Stack (HCS) to accelerate the intelligent upgrade across governments and industries for Middle East and Central Asia. Held under the 'AI for Industries' theme, the TechWave Summit brought together leading Huawei Cloud experts, customers and partners to explore how AI, powered by the latest advances in Cloud, is driving new value and accelerating the digital economy. The TechWave Summit was held on the sidelines of the Huawei Middle East & Central Asia (ME&CA) Tech Carnival 2023, the company's flagship annual event, which took place in Kazakhstan for the first time from June 5 - 7. Under the theme 'Leading Digital Infrastructure for New Value Together', the event brings together industry opinion leaders from the ME&CA region to explore the infinite possibilities of digitalization. At the event, Frank Dai, President of Huawei Cloud Middle East & Central Asia, highlighted Huawei's first mover-advantage in industry digitalization. "We believe AI for Industries will be the next big tipping point. Huawei Cloud offers pre-trained Pangu models with hundreds of billions of parameters to help drive industrial-scale AI development so that AI's power can truly be unleashed across industries." AI has entered into core production systems and has begun creating greater value. The penetration rate of AI in industries has accelerated and will reach 20% in 2026, research data shows. Dr. ZHU Shenggao, Vice President, AI Business, Huawei Cloud Middle East & Central Asia, shared how Huawei has put forward an innovative strategy for AI in industries. During his speech, he introduced Huawei Cloud's Pangu CV and NLP models that accelerate AI adoption and advance intelligence across various sectors. During his keynote, Dr. ZHU introduced the Huawei Pre-Trained Models White Paper, which explores topics such as the future of AI, opportunities and challenges of pre-trained models, and Pangu Model case studies. Meanwhile, Huawei Cloud, together with partners PERCENT, Universal Language Tech, and Emotech launched a series of joint solutions, comprising of five joint Big Data Solutions, four joint AI Solutions, and three joint Multimodal AI Solutions to accelerate industry intelligence. To further explore the application of AI across industries, Huawei Cloud held an AI roundtable together with Prof. Peter Sachsenmeier (Fellow of German National Academy of Science and Engineering), industry experts, and leading companies to share and discuss the latest AI trends, best practices of AI applications, the impact of large models on AI adoption, and how to accelerate AI adoption in the Middle East and Central Asia. Johnny Lyu, the International Business Director of Huawei Cloud Stack, officially launched Huawei Cloud Stack 8.2 in the Middle East & Central Asia. "We hope to leverage Huawei Cloud Stack 8.2 to bring new vitality to the hybrid cloud market while accelerating intelligent upgrades and unleashing digital for more enterprises," he added. Regional governments Leap into Cloud to Unleash Digital Driven by progressive regulatory policies and a growing demand for digital services, ME&CA countries are at the forefront of digital transformation. Citing UN statistics, the IDC white paper ranks Kazakhstan as the digitalization leader in Central Eurasia, driven by a high

level of public services, regulation, a well-developed IT market, and an educated population equipped with relevant digital skills. Meanwhile, Uzbekistan has emerged as a digital government leader. At the event, the Deputy Director of Uzbekistan E-Government Center, Makhmudov Khozhiakbarkhon Makhsumovich, shared his stance on how Huawei Cloud Stack helped Uzbekistan implement the e-government project management center. As a leading digital enabler in Uzbekistan, Uzbekistan E-Government Center is committed to its strategy where "digital technologies are humanity's future; they foster the growth of all aspects of human life and the government, while data digitization will boost the country's development metrics." Huawei Cloud aims to build a cloud foundation for an intelligent world with Everything-as-a-Service. Looking ahead, Huawei Cloud will continue to expand its global cloud infrastructure and provide customers, partners, and developers with stable, secure, and sustainable cloud services.

Huawei and IEEE Kazakhstan Subsection Jointly Release the HPC Lossless Ethernet and AI Fabric Network Technical White Paper

Huawei and the IEEE Kazakhstan Subsection have jointly released a white paper that sheds light on lossless Ethernet, a network solution that promotes high-performance computing (HPC) and AI scenarios thanks to its unrivaled advantages in network performance compatibility, cost-effectiveness and flexibility. The report, titled HPC Lossless Ethernet and AI Fabric Network Technical White Paper, was launched at the Huawei Network Summit, which took place on the first day of the annual flagship Huawei Middle East & Central Asia (ME&CA) Tech Carnival, which is taking place in Almaty, Kazakhstan for the first time, from June 5 - 7. Under the 'Leading Digital Infrastructure for New Value Together' theme, Huawei's ME&CA Tech Carnival brings together industry opinion leaders to explore the infinite possibilities of digitalization. In attendance at the launch ceremony of the white paper were Arthur Wang, President of the Data Center Network Domain, Huawei Data Communication Product Line, Dr. Carlo Molardi, IEEE Kazakhstan Subsection, Liu Gui, Vice President of Enterprise Business Group, Huawei Middle East & Central Asia Region; and Fahem Al Nuaimi, CEO, Ankabut, the United Arab Emirates. Around the world, many countries and regions are proactively formulating policies conducive to developing HPC and AI to promote digital transformation and lossless Ethernet is and will keep playing a key role in these efforts. For example, Saudi Arabia has formulated Saudi Vision 2030, aiming to develop HPC and AI technologies to improve global competitiveness. It also established the King Abdulaziz City for Science and Technology (KACST) to support the R&D of HPC and AI projects. Qatar also released National Vision 2030 to propel HPC and AI technologies. The Qatar Computing Research Institute is Qatar's foremost research institute focusing on HPC and AI with the mission to promote technological innovation. The UAE also established the National AI Strategy 2031 and appointed the world's first Minister for AI. Ankabut, UAE's advanced research and education network (NREN), has adopted lossless Ethernet in its supercomputing center to provide computing services for 35 educational institutions and 80 colleges and universities and support research in fields such as meteorological prediction and modeling, life sciences, fluid mechanics and oil exploration. Dr. Fahem Al Nuaimi, CEO of Ankabut, said, "Ankabut wants to play its role in promoting cutting-edge research and development and collaboration for member institutions and the country. An advanced network is crucial for this role. Working with partners like Huawei, we can create a future-proof network that helps advance our mission of making UAE universities leaders in research." According to the white paper, lossless Ethernet technology adopts intelligent remote direct memory access (RDMA) and network scale load balancing (NSLB), which help to achieve zero packet loss and 90% ultra-high network throughput. The report begins with the HPC network architectures: Clos, Multi-Rail, and directly connected topology (DCT). Clos is a multistage architecture, with each switching unit connected to all switching units at its lower stage. It is strict-sense non-blocking, re-arrangeable, and scalable. Multi-Rail adopts cell switching of modular devices to implement absolute load balancing. DCT features ultra-large networking, low costs, and a small number of end-to-end communication hops. The paper then details how the software architecture improves HPC and AI application performance from two aspects: network optimization and convergence and optimization of the network and application system. The objective of network optimization is to maximize the throughput and minimize the latency of the entire network, which involves the following technologies:

Flow control: Identifies cyclic buffer dependencies and eliminates the necessary conditions for generating them, resolving the PFC deadlock problem and enhancing network reliability. Congestion control: Draws on the AI algorithm to dynamically adjust the explicit congestion notification (ECN) thresholds for maximized network bandwidth and minimized network latency. Traffic scheduling: Adopts NSLB technology to load balance network-wide traffic, achieving 90% ultra-high network throughput and improving AI training efficiency by 20%. To converge and optimize the network and application system, in-network computing (INC) technology is used on HPC networks. Designed for Message Passing Interface (MPI) communication, this technology enables network devices to participate in computing, minimizing the job completion time. HPC and AI are becoming converged and ready for everything, and Lossless Ethernet is ideal for laying a solid foundation for HPC. This will help to fully unleash computing power across industries to promote the prosperity of the digital industry and fuel global digital transformation, underpinning the construction of a fully-connected, intelligent world.

Nokia Unveils First CE-Certified 5G Automated Drone-in-a-Box Solution for Secure, Reliable Public Sector and Industrial Operations

Nokia has revealed it is the first to offer a CE-certified, turnkey drone-in-a-box solution, designed to meet the growing demands of organizations including public safety agencies, smart cities, construction, energy and defense. CE-certified to meet safety requirements of the European Union, the Nokia Drone Networks solution connects over public and private 4G/LTE and 5G networks to enhance situational awareness for first responders and other professionals. The solution is manufactured in Europe and comprises Nokia drones, docking station, dual gimbal camera and edge cloud processing using Nokia MX Industrial Edge (MXIE). By connecting over public and private 4G/LTE and 5G networks, customers will benefit from the highest reliability. Using cellular connectivity technologies also offers higher data rates and lower latency enabling more data to be streamed than over Wi-Fi. Beyond visual line of sight (BVLOS) operations with real-time kinetic (RTK) positioning improves situational awareness. Dual modem connectivity allows Nokia drones to simultaneously connect to multiple networks, complying with system redundancy that is commonly required by aviation regulatory bodies. The Nokia Drone Networks solution can be operated remotely for search and rescue activities, and to assess damage in a hazardous environment. Nokia drones can also be programmed to manage autonomous scheduled flights for applications like additional security at large events or to manage regular remote equipment inspections. The docking station protects the drone and payload, such as the sensor devices or dual gimbal camera, from external hazards and harsh weather while it remotely charges the drone to prepare for the next flight. When used in conjunction with Nokia MXIE, data from Nokia drones can be collected and processed in real time at the edge cloud. An open API framework allows agencies and enterprises to onboard pre-integrated Nokia and third-party applications and systems and take advantage of a growing number of compelling public safety and Industry 4.0 use cases for drone automation, including object identification, tracking and network measurements. Nokia and the New York Power Authority have already demonstrated the use of the Nokia Drone Networks solution, connected over private LTE, for transmission line inspection. Thomas Eder, Head of Embedded Wireless Solutions at Nokia, said: "Our mission is to reshape the industrial UAV (unmanned aerial vehicle) market, providing enhanced situational awareness to aid search and rescue, surveillance, and other UAV operations in a wide variety of industries. Nokia Drone Networks has been designed to comply with the remote operation requirements of aviation regulatory bodies such as EASA in Europe and FAA in the United States. This will help us address growing market demands as a turnkey provider with a solution designed and produced in Europe. The unique feature set enabling the integration of Nokia drones with third-party applications will aid the transformation of the drones, allowing them to be used as a flying data collection platform leveraging reliable 4G and 5G edge cloud connectivity." Depending on the deployed configuration, Nokia drones offer more than 50 minutes of flight time and cover distances of more than 30 km due to the unique hardware architecture, integrated software innovations and the 4G/5G connectivity.

Nokia Threat Intelligence Report Finds Malicious IoT Botnet Activity Has Sharply Increased

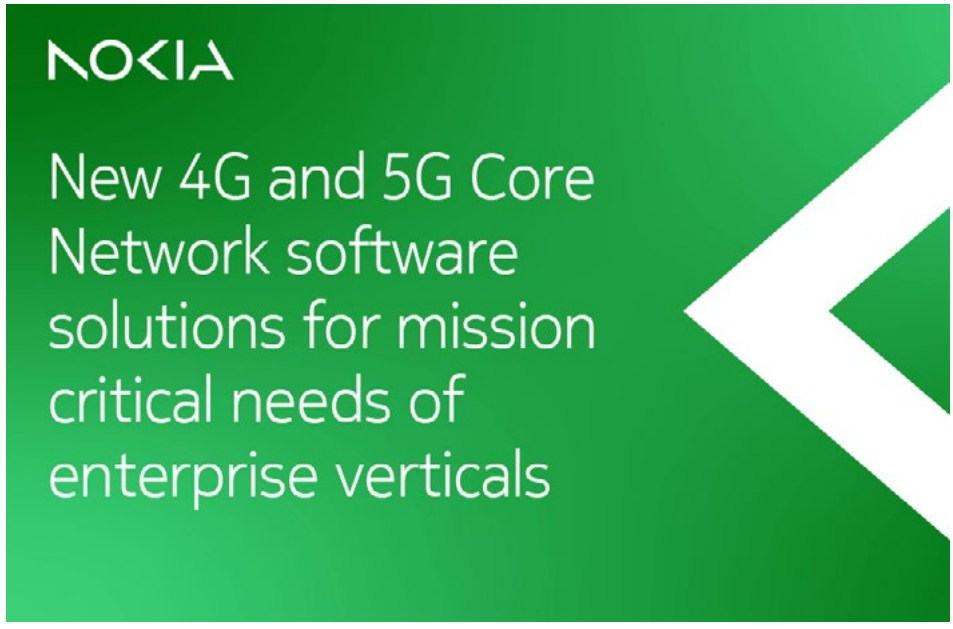
The latest Nokia Threat Intelligence Report released has found that IoT botnet DDoS (Distributed Denial of Service) traffic, originating from a large number of insecure IoT devices with the aim of disrupting telecom network services for millions of users, increased fivefold over the past year, following Russia's invasion of Ukraine and stemming from the growing increase in profit-driven hacking collectives operated by cybercriminals. This sharp increase, also supplemented by the increased use of IoT devices by consumers around the world, was first noticed at the beginning of the Russia-Ukraine conflict but has since spread to other parts of the world, with botnet-driven DDoS attacks being used to disrupt telecom networks as well as other critical infrastructure and services. The number of IoT devices (bots) engaged in botnet-driven DDoS attacks rose from around 200,000 a

year ago to approximately 1 million devices, generating more than 40% of all DDoS traffic today. The most common malware in telecommunication networks was found to be a bot malware that scans for vulnerable devices, a tactic associated with a variety of IoT botnets. There are billions of IoT devices worldwide, ranging from smart refrigerators, medical sensors, and smart watches; many of which have lax security protections. The Threat Intelligence Report also found that the number of trojans targeting personal banking information in mobile devices has doubled to 9%, putting millions of users around the world at heightened risk of having their personal financial and credit card information stolen. A trojan is nefarious software code disguised as being safe for use. The report, however, did find some encouraging news, showing that malware infections in home networks declined from a Covid-high of 3% to 1.5%, close to the pre-pandemic level of 1%, as malware campaigns targeting the wave of at-home workers tapered off, and more people returned to office work environments. Those findings are based on data aggregated from monitoring network traffic on more than 200 million devices globally where Nokia NetGuard Endpoint Security product is deployed. The Threat Intelligence Report is compiled by experts at the Threat Intelligence Center in Canada, the Nokia Cyber Security Center in France; the Nokia Security Operations Center in India; and Nokia Deepfield, a part of Nokia focusing on software applications covering network analytics and DDoS security. Hamdy Farid, Senior Vice President, Business Applications at Nokia said: "The key findings in this report underline both the scale and sophistication of cybercriminal activity today. A single botnet DDoS attack can involve hundreds of thousands of IoT devices, representing a significant threat to networks globally. To mitigate the risks, it's essential that service providers, vendors, and regulators work to develop more robust 5G network security measures, including implementing telco-centric threat detection and response, as well as robust security practices and awareness at all company levels."

Nokia Wins Nationwide 5G RAN Deal with Orange Jordan

Nokia has been selected by Orange Jordan to supply 5G Radio Access Network (RAN) equipment throughout the Kingdom of Jordan, the company announced. The deal will enable Orange Jordan to provide enhanced connectivity and capacity to its customers as well as to lay the foundations supporting the digital transformation of the country and economy. Nokia will supply 5G RAN equipment from its comprehensive AirScale portfolio powered by its energy-efficient ReefShark System on Chip (SoC) technology and will replace Orange Jordan's entire existing RAN network. Orange Jordan aims to provide 5G services to 50 percent of the population within four years followed by five percent year-on-year growth. The deal includes the latest generation massive MIMO radios with support for high RF bandwidth as well as AirScale Baseband and Dual-band Remote Radio Head (RRH) products. In addition, Nokia will supply its Single RAN solution that enables one base station to run 5G, 4G, 3G, and 2G technologies simultaneously, helping Orange Jordan achieve more efficient site solutions across their network. Orange Jordan will also utilize Nokia's NetAct network management system to enable a consolidated network view for improved network monitoring and management. Nokia will also provide digital design, deployment as well as technical support services. Tommi Uitto, President of Mobile Networks at Nokia, said: "5G technology will have an evolutionary impact on the Kingdom of Jordan stimulating growth and enabling advanced services for the benefit of both industries and consumers. We are delighted to continue our long-standing partnership with Orange Jordan to support the country's path to digital transformation."

Nokia Announces New 4G and 5G Core Network Software Solutions for Mission Critical Needs of Enterprise Verticals



Nokia has announced new, optimized Core Network software solutions for the field and wide area network (FAN/WAN) needs of public safety and power utilities, expanding the portfolio range available to large, mission-critical enterprises and governments, and reflecting Nokia's deeper push into driving continued leadership in private wireless. Nokia Core Enterprise Solutions are based on the company's widely deployed Core products and optimized to help enterprises take advantage of secure carrier grade capabilities and digitalize their network infrastructure to realize increased automation, productivity and efficiency. The addressable market for Core networks solutions in the enterprise FAN/WAN private wireless communications space is expected to increase 50 percent and reach EUR 1.5 billion by 2027 from approximately EUR1 billion today, according to Nokia estimates. Nokia Core Enterprise Solutions are an integral component of Nokia's private wireless solution and designed for enterprises and governments that have networking requirements similar to a communication service provider. These new solutions are tailored to the specific mission-critical network needs of public safety and power utilities, and include highly optimized footprint and operational requirements and streamlined deployment and support. The solutions, expected to be commercially available later this year, provide unified 4G and 5G data, voice and subscriber/device management capabilities, and create streamlined adoption paths across technology and application generations. These include use of broadband-enhanced communication tools for public safety and the introduction of IoT in power utilities. Ken Rehbehn, Principal AnalystaCritComm Insights, said: "A select set of government and business operations provides essential safety, energy, and transportation functionality required for a safe society and robust economic growth. These organizations have a unique requirement for wide-area wireless operations across sweeping geography with secure, ubiquitous, and high-quality connectivity enabled by private 4G and 5G networks. Nokia's pre-integrated, sector-optimized mission-critical core network solutions can reduce risk and help speed challenging wide-area private network deployments." Fran Heeran, SVP & General Manager of Core Networks, Cloud and Network Services, at Nokia said: "This exciting new evolution of our Core portfolio further enhances Nokia's leading position in private wireless. Nokia Core Enterprise Solutions will provide important catalysts for accelerating digital transformation for enterprises in public safety and power utilities. They will modernize large scale enterprise networks, as well as provide important broadband capabilities and a clear and path to deploying private 5G for the WAN."

Nokia Scores Belgium Public Safety Drone Deal

Nokia won a contract to supply a drone network platform and 70 units to specialist Belgian provider Citymesh, with the system set to provide critical aerial data to emergency services. The deployment comprises the Nokia Drone Networks platform and 70 drone-in-a-box units, which the vendor noted was enough to "blanket Belgium with a 5G automated drone grid". Drones and their docking stations are set to be positioned in 35 emergency zones across the country, and will be able to quickly gather information during the so-called critical 15 minutes following an incident. The units will be able to deliver high-definition, AI-enhanced thermal imaging to provide insight into elements such as smoke plumes and fire parameters, alongside details on the whereabouts and number of people in the vicinity. Data will be available to emergency services in near real-time. Citymesh is branding the system Sense and has already trialed it in various settings, including with the Port of Antwerp-Bruges, City of Genk, Brussels Airport Company and a fire brigade in Kortrijk.

Nokia and du Deliver Residential Broadband Services Over Fixed-Wireless Access

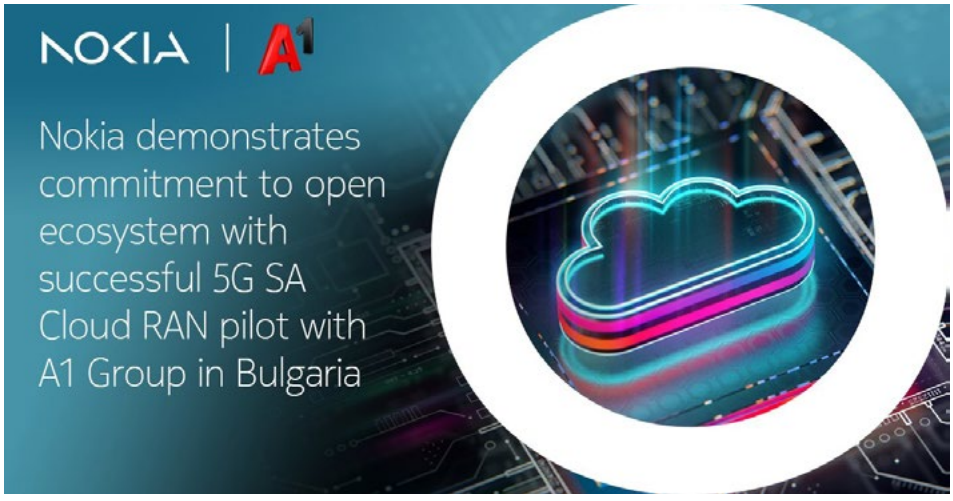
Nokia announced that du, from Emirates Integrated Telecommunication Company (EITC), is deploying Nokia's Multi-Access Gateway (MAG) to provide broadband services to residential and business users over 4G/5G fixed-wireless access (FWA), in addition to mobile services. du is leveraging the Nokia FastMile 5G gateways, MAG, and Nokia professional services. Fixed-wireless broadband is emerging as one of the most significant use cases of 5G and will enable du to add new revenue streams with Gigabit speeds and low latency delivery for innovative and immersive broadband applications. The Nokia MAG leverages its 7750 Service Routers (SR) to efficiently deliver broadband services over fiber and/or fixed-wireless access technologies. It allows du to efficiently offload fixed-wireless broadband traffic from its mobile core network and improve service scalability, subscriber coverage and time to market. Saleem AlBlooshi, Chief Technology Officer, du, said: "Fixed-wireless access is a vital and highly effective initiative, enabling us to provide cutting-edge use cases such as smart home and IoT solutions to our valued subscribers. As a trailblazer in this domain, du takes immense pride in being the first in the MEA region to implement this ground-breaking solution. du's long-standing collaboration with Nokia has been fruitful, and this latest initiative will propel us to develop even more innovative use cases, ultimately elevating the user experience for our subscribers who will undoubtedly enjoy the benefits of high-speed internet connectivity within indoor environments." Rima Manna, Vice President, Middle East Market Unit at Nokia MEA, said: "Fixed-wireless access is becoming a game-changer for bringing innovative broadband services to residential and business users. Nokia is committed to helping mobile and converged operators develop new applications and revenue streams with FWA. This exciting new initiative takes our long-lasting relationship with du to the next level."

Nokia and VNPT Bring 10G Broadband to Vietnam

Nokia announced the first deployment of 10G fiber broadband in Vietnam with operator Vietnam Posts and Telecommunications (VNPT). The initial rollout will connect 10,000 homes and businesses in the 8 largest provinces of the country. Nokia is providing fiber access nodes for the operator's exchanges and fiber modems for end users' premises. Fiber broadband is being rolled out rapidly in Vietnam. In September 2021, the country's Ministry of Information and Communications launched the National Digital Transformation Program with the goal that fiber internet infrastructure should cover 80 percent of households and 100 percent of communes by 2025. According to Global Data's Vietnam Telecom Operators Country Intelligent Report, VNPT is the market leader with 39.5% of the market in 2022. As well as home internet, the operator offers mobile and pay-tv services.

Moving to a multi-gig network will help VNPT differentiate its services and maintain its leadership position. With this new technology, VNPT will be able to offer customers a full choice of speeds up to 10 Gb/s on the existing platform without the need for construction work to lay new fiber. Mr. Dang Anh Son, CEO at VNPT Net Corporation, said: "This project is our first step towards high-class FTTx services which meet our residential and business customers' demand for higher bandwidth and service quality using the latest generation XGS-PON. Next step, VNPT will work with Nokia to deploy cloud-based network management systems for the XGS-PON and enhance customer experiences through digital transformation solutions." Rubén Morón Flores, Head of Market Unit Vietnam at Nokia, said: "We are proud to have been selected by VNPT for this important milestone of bringing 10G broadband to the country for the first time. The APAC region is the largest in the world for fiber broadband. Our multi-gig and multi-PON solution provides for incredible flexibility and scale. Vietnam has ambitious plans and we're delighted to be part of them." Nokia 7360-FX Lightspan series access node (OLT) Nokia 7360-FX Lightspan is a high-capacity access node for massive scale fiber rollouts. Usually located in telecom central office, it connects thousands of users via optical fiber, aggregates their broadband traffic and sends it deeper in the network. The fiber access node supports multiple fiber technologies including GPON, XGS-PON, 25GS-PON and Point-to-Point Ethernet to deliver a wide range of services with the best fit technology.

Nokia Demonstrates Commitment to Open Ecosystem with Successful 5G SA Cloud RAN Pilot with A1 Group in Bulgaria



Nokia announced that it has successfully trialed its Cloud RAN solution on A1 Group's (A1) commercial 5G network in Bulgaria. The trial, which took place in Sofia, saw the companies successfully perform an end-to-end 5G data call (Layer 3 call) utilizing Nokia's Cloud RAN solution as well as its AirFrame servers. A1 is testing the capabilities of Cloud RAN technology to assess the value of transforming to the cloud. A commercial 3GPP standard 5G SA device was used during the trial. This trial demonstrated the progress that has been made toward the commercial viability of larger-scale Cloud RAN deployments. In the trial, the Nokia Cloud RAN vDU (virtualized distributed unit) served radio cells at a distance of more than 15km. Furthermore, operational efficiency was increased using Nokia's suite of cloud deployment automation tools. Cloud RAN brings agility, flexibility, and openness for operators and enterprises in collaboration with the wider industry ecosystem. It can deliver innovative technologies and services that help establish new business and revenue models. Nokia's Cloud RAN solution offers feature performance consistency with purpose-built RAN including seamless continuity and the same carrier-grade high performance. Nokia recently announced the launch of anyRAN to help mobile operators and enterprises extend their options for building and evolving their radio access networks. Nokia's approach supports the seamless integration, co-existence, and evolution of Cloud RAN with purpose-built networks powered by Nokia AirScale baseband across all network environments. Nokia is a long-standing partner of A1 Group, a leading provider of digital services and communications solutions in Central and Eastern Europe, and its 5G supplier across multiple markets that also include Austria, Serbia, and Slovenia. Nokia provides equipment from its AirScale portfolio including 5G RAN and other Nokia AirScale radio access products that deliver incredible speeds, connectivity, and capacity. Nokia also provides its 5G Standalone core network to A1 Serbia and A1 Slovenia. Todor Tashev, Senior Director at A1BG, said: "A1BG and Nokia successfully executed the trial, integrating Nokia's Cloud RAN solution with A1BG's transport and Packet Core networks. We have proved the maturity of the solution, including edge data center and cloud orchestration solutions, provided by Nokia." Alexander Kuchar, Director Technology & Business Evolution, A1 Group, said: "This trial is an important milestone as we continue to deliver on our strategy of bringing best-in-class 5G services to our subscribers. Cloud RAN and open interfaces are drivers for building and delivering future generations of cloud-based networks and edge services. It introduces flexibility in the architecture of our infrastructure and related operating model and helps us to deliver innovation and the benefits of digitalization to our customers."

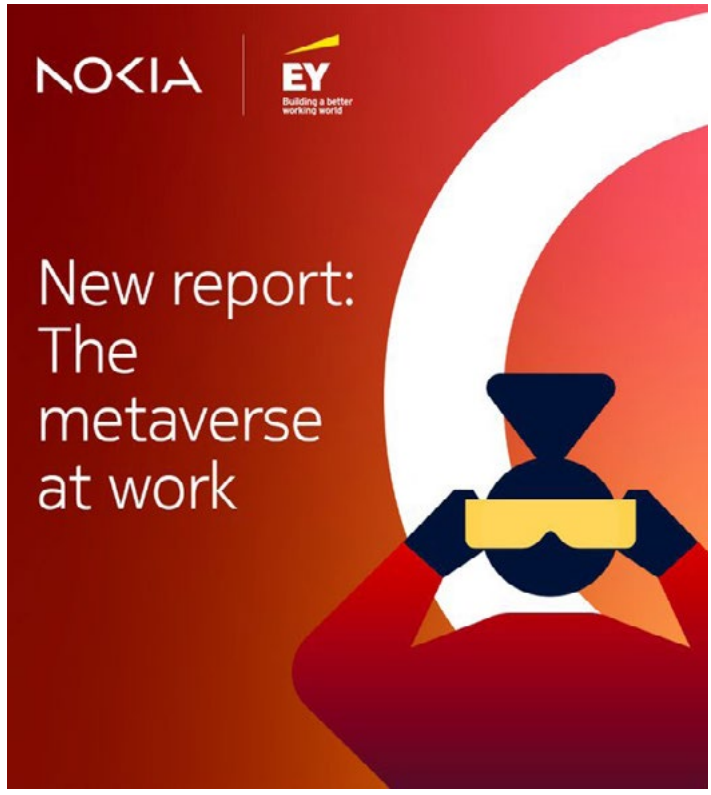
ESB Networks and Sigma Wireless Deploy National 4G/LTE Private Mobile Network with Nokia in Ireland

Nokia and Sigma Wireless Communication have announced that ESB Networks, Ireland's foremost energy company, has awarded a contract to Sigma Wireless and its partner Nokia for the development of a leading-edge, mission-critical private mobile network. Nokia will work with Sigma Wireless Communications and ESB to supply and install the new LTE-based private wireless system over a three-year period. This purpose-built, mission-critical telecommunications network is a key enabler for ESB Networks in delivering

integration of renewable energy to the grid, decarbonization of the electrical network and electrification of heat and transport amongst other benefits. A dedicated Smart Grid telecoms network forms part of ESB Networks' Innovation Strategy that aims to bring many benefits to Ireland from an environmental, economic and customer perspective. Nicholas Tarrant, ESB Networks Managing Director, welcomed the development: "An ever smarter and agile electricity network is key to the delivery of a more sustainable future, with the customer at its core. The purpose-built private telecommunications network now being developed will be a key enabler in delivering integration of renewable energy to the grid, decarbonization of the electricity network and the electrification of heat and transport amongst other benefits. As such, this private, reliable, and secure mobile network will be an indispensable precursor to delivering a Net Zero-ready electricity network."

Nokia and EY Study: Enterprise and Industrial Metaverses Are Exceeding Expectations

Companies that have already deployed industrial metaverse use cases are seeing more reported benefits than those still in the planning phase expect, most notably in capital expenditure reduction (15%), sustainability (10%) and safety improvement (9%), according to a study published by Nokia and EY. Examining the current state of the enterprise and industrial metaverses, the metaverse at work1 study which surveyed 860 business leaders across six countries shows that the industrial metaverse, particularly, is expected to deliver on and beyond expectations. The findings show that companies believe in the power of the metaverse and that metaverse technologies are here to stay. Only 2% of respondents see the metaverse as a buzzword or a fad, while 58% of companies with future metaverse plans have already deployed or piloted at least one metaverse-related use case. Nearly all (94%) of those who have yet to begin their metaverse journey plan to do so in the next two years. Companies also say the industrial metaverse is creating substantial business value. On average, 80% of those who have already implemented metaverse use cases believe they will have a significant or transformational impact on the way they do business. Nearly all (96%) respondents see how, by mixing physical and virtual use cases, the metaverse brings additional innovative capabilities that will allow them to accelerate the deployment, adoption and monetization of Industry 4.0 for their business. In terms of geography, the US (65%), UK (64%) and Brazil (63%) are currently leading the way when it comes to having deployed or piloted at least one industrial or enterprise metaverse use case. The average in Germany was 53% while Asia Pacific is less advanced (Japan, 49%; South Korea, 49%). When asked which use cases, they most expect to deliver transformative value, enterprises saw the highest potential in the use of extended reality for training to onboard and upskill the workforce, while three out of the four industries surveyed chose the use of virtual R&D to enhance product design and processes. When deploying metaverse use cases, companies clearly appreciate the need for sufficient infrastructure and robust analytical capabilities. Respondents placed highest importance on the key technical enablers that are truly foundational to meeting the demands of such use cases – cloud computing (72%), AI/ML (70%) and network connectivity (68-70%). Given the need for further technical expertise in house, at this stage enterprises are relying on a range of partners to close capability gaps and deploy use cases. Vincent Douin, Executive



Director, Business Consulting and Business Transformation, Ernst & Young LLP, said: "The industrial and enterprise metaverses are here, this study shows the clear appetite for these technologies such as extended reality and digital twins to achieve business goals. We are already seeing many organizations going above and beyond the planning stages and recognizing tangible benefits from their initial implementations." Thierry E. Klein, President of Bell Labs Solutions Research, Nokia, said: "It is great to see that companies clearly believe in the power of the Metaverse for business value creation in both enterprise and industrial use cases. This strongly aligns with our vision, informed by more than 8 years of research at Nokia Bell Labs, that the Industrial Metaverse is an extension of Industry 4.0. Consequently, those who have already implemented mission-critical communications networks for Industry 4.0 are now well placed to experience the benefits of the Metaverse that clearly some companies are already seeing."

SES and TESAT to Develop Payload for Europe's First Quantum Cryptography LEO Satellite System EAGLE-1

EAGLE-1 consortium lead SES announces a new key partner, TESAT, responsible for developing and integrating the Quantum Key Distribution (QKD) payload for the EAGLE-1 satellite. The SES and TESAT partnership is aimed at achieving the next key milestone in building and implementing Europe's pioneering quantum secure communications initiative EAGLE-1. Supported by the European Space Agency (ESA) and the European Commission, EAGLE-1 is a quantum key system integrating both space and ground segments that will deliver secure transmission of encryption keys across geographically dispersed areas and connect EU's national quantum communications infrastructures for truly sovereign networks. Consortium member and Europe's leading laser communication technology company TESAT will manufacture the QKD payload comprising the Scalable Optical Terminal SCOT80 to establish a secure optical link from space to ground, as well as the QKD module of the satellite. The technology integrated into the EAGLE-1 system's payload will include built-in redundancy and is specifically designed to be associated with the satellite communications and data transmission for such areas as government, telco operators, cloud providers and banking, to add guaranteed security of the cryptographic applications. "EAGLE-1 is a project that will benefit the whole of Europe, and being able to work with the leading technology players in the market to co-develop it and together shape this innovative secure technology is a privilege to SES," said Ruy Pinto, Chief technology Officer of SES. "The addition of the secure optical links and the actual QKD module brings us closer to implementation, testing and further scaling the technology, that can ultimately serve millions of users. This elevates secure communications to an entirely new level, supporting development of reliable pan-European quantum communications infrastructures." "We are delighted to be selected as payload prime by SES and looking forward to bring our expertise in integrating secure technologies, and a track record of almost 80,000 executed optical satellite links for the benefit of this highly-important and timely European project," said Thomas Reinartz, CEO of TESAT. "The EAGLE-1 system allows for achieving synergies together with leading industry partners, SMEs and institutes, reducing time to service and to market for the quantum secure technologies and its future key users, such as governments and institutions, or banking sector. Together with our partners, we are looking forward to strengthen European collaboration at all levels, including SMEs and institutions and contributing to European sovereignty in space."

SES Releases Q1 2023 Results

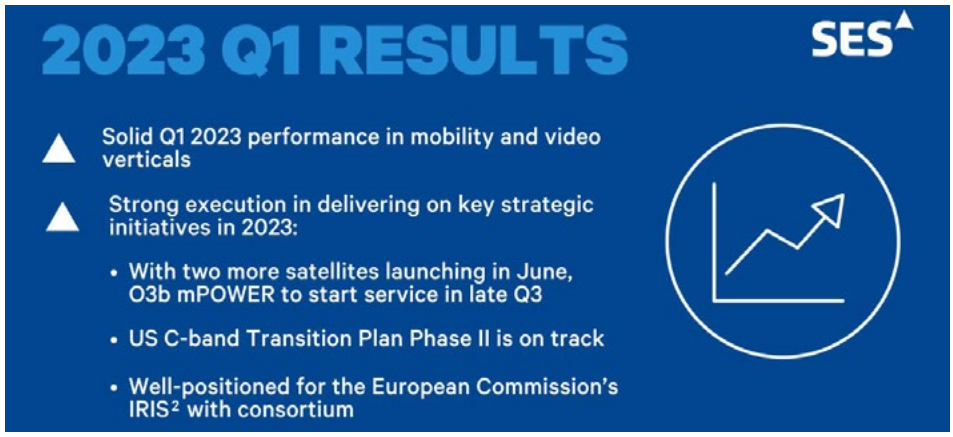
SES S.A. announced financial results for the three months ended 31 March 2023.

Solid Q1 2023 performance and on track to deliver Full Year 2023 financial outlook

- Revenue of €490 million (+9.6% YOY as reported) including contribution from DRS Global Enterprise Solutions and stronger US dollar
- Differentiated Networks business +2.9% YOY including double digit growth in Mobility
- €90 million in new business signed in Mobility since 31 March 2023, including significant wins in Aviation and Cruise
- €110 million of renewals and new business in Video (-5.0% YOY) demonstrating long-term attraction of our core neighborhoods
- Adjusted EBITDA of €265 million (-3.2% YOY as reported) representing a margin of 54%
- 2023 outlook unchanged and on track (Revenue of €1,950-2,000 million and Adjusted EBITDA of €1,010-1,050 million)
- Strong execution in delivering on key strategic initiatives in 2023
- First 4 O3b mPOWER satellites launched and next 2 satellites planned to launch in June 2023, paving the way for start of commercial service in late Q3 2023 with customers ramping onto the system through Q4 2023
- SES-17 & O3b mPOWER backlog of $1 billion with additional commitment of €195 million from Luxembourg government
- US C-band Phase II on track: SES-18 & SES-19 launched, >95% of satellite transitions completed, and >90% of ground filters installed
- Well positioned for the European Commission's IRIS2 via strong consortium of space and telecom players focused on creating a state-of-art, multi-orbit space-based infrastructure for European governments and their citizens

Steve Collar, CEO of SES, commented: "2023 has started well with solid Q1 results and excellent progress on both O3b mPOWER and our US C-band project. Close to double digit revenue growth as reported reflects the contribution from our acquisition of DRS GES, while solid EBITDA performance underscores our continued focus on execution across the business. We have good market traction with a number of deals signed since the start of the year with €90 million of backlog added in Mobility; a substantial upgrade with CNT in Ecuador including a transition to O3b mPOWER; a 5-year renewal with long standing customer US Army WIN-T program; and a number of multi-year extensions, on excellent commercial

terms, with private and public broadcasters in Germany underscoring the value of our industry-leading video neighborhoods. With the successful launch of the 2 remaining C-band satellites, our project to clear C-band spectrum to support 5G services across the US is entering its final phase, and we remain fully on track to earn $3 billion in accelerated clearing payments before year-end. O3b mPOWER will deliver industry-leading capabilities, broaden our commercial market reach, and form a critical layer for sovereign Government solutions such as Luxembourg's MEO Global Services program. We are pleased to bring our multi-orbit credentials to a strong consortium formed of leading European space and telecom operators under the frame of the European Commission's



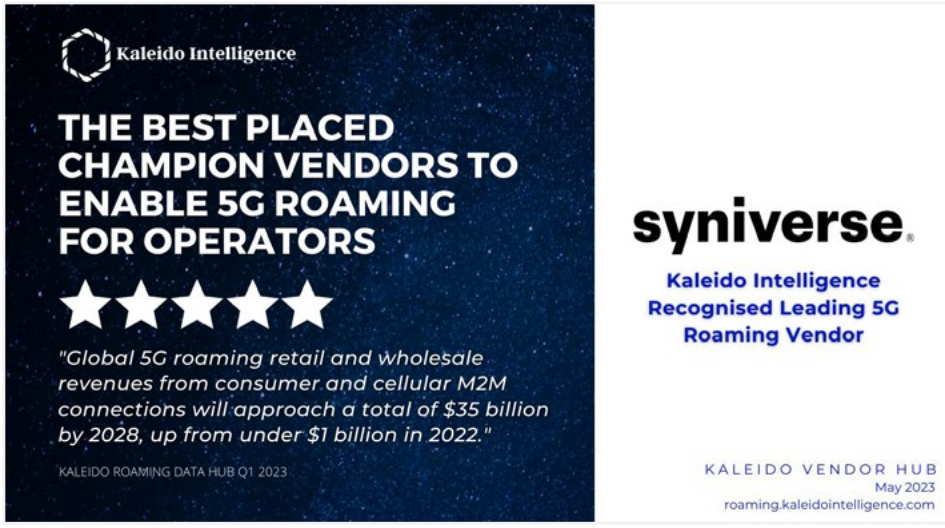
IRIS2 project. Last week was a good week for O3b mPOWER with 2 more satellites launched successfully. We now have 4 satellites in orbit with the last 2 of the initial constellations slated for a June launch. Our ground networks are ready, customer terminals are being deployed and we anticipate commercial launch in Q3 in what promises to be an exciting year for SES in 2023."

stc Bahrain Secures Top Ranking in TRA's 2022 Quality of Service (QoS) Reports

stc Bahrain has secured the highest ranking across 12 quality of services parameters which includes top three categories of the latest 2022 Bahrain Telecommunications Regulatory Authority (TRA) Mobile QoS report*. This is another milestone for stc Bahrain, the digital enabler of innovative solutions and new technologies in line with the evolving consumer demand. Playing a pivotal role in Bahrain's transformation to be a more digitally enabled society, and strengthening its digital position in the region, stc Bahrain's nationwide 5G coverage network covers Bahrain's residential and business areas with its advanced generation of services and delivers unwitnessed performance in terms of speed** and low latency***. As it continues to expand its 5G nationwide coverage, stc 5G network has been recognized to be the fastest in the Kingdom with record upload and download speeds** and high computing capabilities that deliver high-resolution video, VR, AR, multimedia, and online data communications. Moreover, stc Bahrain has been ranked First network for Best Voice quality of service and Best Web Experience *** for the cutting-edge technology and innovation it brings to Bahrain enabling the community to experience a new digital way of life.

Commenting on the TRA QoS report, Eng. Nezar Banabeela, stc Bahrain CEO said, "We are thrilled to have secured a top ranking across 12 technology parameters in the 2022 TRA's Mobile QoS report*. It is a testament to our high-network quality and wide 5G coverage bandwidth across Bahrain and our capabilities to fuel 5G experiences for customers and businesses. This is important to us as we continue to push new boundaries in technology, to provide state-of-the-art and next-generation connectivity services to our customers while contributing to making Bahrain more digitally enabled."(*): stc Bahrain ranked No. 1 in 12 Network Performance Indicators in TRA's Reports "Mobile Networks Coverage Audit - 2022" and "Quality of Mobile Services - 2022" conducted during the period: 30 Oct 2022 to 18 January 2023. (**): stc Bahrain is ranked No.1 in: 5G UL/DL Maximum Throughput (***) stc Bahrain is ranked No.1 in: 4G / 5G Web Delay and Voice Over LTE Excellent Quality Rate

Syniverse Recognized as Leading 5G Roaming Vendor



Syniverse, "the world's most connected company®," has been recognized by consulting and market research firm Kaleido Intelligence as one of the best vendors to enable 5G roaming for operators in its "5G Roaming: Consumer and IoT Strategies 2023" report. The report analyzes the 5G roaming landscape, assessing key trends, developments, and requirements. It also offers feedback from leading operator groups about 5G opportunities and revenue drivers, technical specifications for mobile network operators (MNOs), and an outlook on the market. "Being named as one of Kaleido Intelligence's top vendors for 5G roaming solutions once again demonstrates Syniverse's unparalleled track record of successfully guiding operators through network transformations, which we have done for more than 30 years," remarked Andrew Davies, Chief Executive Officer, Syniverse. "As Kaleido's report details, more than 85% of participating MNOs plan to launch 5G standalone roaming by the end of 2025. We will continue providing best-in-class service as they build out their next-generation networks as well as facilitating uninterrupted service for their subscribers, regardless of where they may travel." Kaleido Intelligence estimates that consumer mobile and Internet of Things (IoT) devices will exceed 5,000 petabytes of 5G data roaming traffic globally by 2028, when approximately 100 million machine-to-machine (M2M) connections will roam over 5G networks. That data represents 78% average annual growth, and it will account for more than 70% of worldwide data roaming traffic and lead to nearly $100 billion in roaming revenues for mobile operators over the next five years. Syniverse was one of six vendors spotlighted in the report, which singled out the company's 5G Signaling Controller as a leading 5G technology evolution. 5G Signaling Controller is an HTTP2-based solution designed specifically to efficiently enable roaming for 5G standalone networks and deliver 5G experiences and market opportunities. The report also highlighted the value of Syniverse's voice-over-LTE (VoLTE) roaming solutions, which can be deployed by MNOs with their roaming partners to provide a seamless experience for subscribers. The most recent and first-of-its-kind capability, Evolved Mobility for Outbound Roaming, is a cloud-based feature introduced in February to complement Evolved Mobility for Inbound Roaming. Together, the products allow MNOs retiring their 3G networks to serve roamers with VoLTE-enabled devices to and from roaming partners who have not yet launched VoLTE.

Tech Mahindra and EarthID Announce Strategic Partnership to Create a Blueprint for Self-Sovereign Identity (SSI) Powered Metaverse

Tech Mahindra, a leading provider of digital transformation, consulting and business re-engineering services and solutions, announced a strategic partnership with EarthID, the award-winning Decentralized Identity Management platform that allows secure and frictionless exchange and verification of identity information. The partnership will co-create a blueprint for a Self-Sovereign Identity (SSI) powered Metaverse platform that will provide users control over their data, privacy, and consent. Additionally, the platform will enable enterprises to protect their Metaverse environments from malicious threats such as DDoS (distributed denial-of-service) attacks, data breaches, and phishing attacks. SSI-powered Metaverse will empower enterprises to mitigate security concerns related to stolen identities and sensitive data, which may lead to huge legal and financial losses. Together, Tech Mahindra and EarthID will create industry-leading solutions to prevent identity theft, optimize costs, and advance sustainability by facilitating secure, frictionless transmission and verification of identities. Rajesh Dhuddu, Global Business Head, Emerging Technology Practice, Tech Mahindra, said, "In the early days of the

internet, when the Safe Code of Practice for online interactions was not formed, naive internet users shared Personally Identifiable Information (PII) without restriction. This caused reputation risk, unlawful access to user data, and impersonation. Thankfully, although the safety features of the internet have developed and users have grown more cautious and discretionary, the Metaverse still faces the same difficulties as it is too new and has no Code of Practice yet. We can now solve these challenges through our partnership with EarthID. It will enable us to create a secure system of interoperable identities for virtual worlds that will help users authenticate without revealing identity. It will also improve business value for our customers by empowering them to adopt and internalize Metaverse offerings, in a safe and secure way." Through this partnership, Tech Mahindra will integrate EarthID's blockchain-based, decentralized identification capabilities into its new SSI-powered metaverse platform, making it secure for users and enterprises. SSIs are digital identities focused on verified and authentic credentials linked to real-world verification data, such as biometrics, that are managed in a decentralized manner. By utilizing blockchain technology and zero-knowledge proofs, users can self-manage their digital identities without depending on third parties to centrally store and manage their data. Priya Guliani, CEO of EarthID, said, "The advent of Metaverse has posed a challenge to organizations to provide a seamless, frictionless, and secure experience that attracts and retains customers. EarthID offers a user-centric, decentralized identity platform that is easily integrable, interoperable, and reusable across various Metaverses. Our partnership with Tech Mahindra will enable our enterprise clients to create immersive and secure experiences for their customers, employees, and partners, improving stakeholder engagement and brand loyalty." Tech Mahindra and EarthID aim to deliver industry benchmarking solutions that address data protection and privacy concerns while enabling enterprises to differentiate themselves in the competitive Metaverse landscape. The partnership is in line with Tech Mahindra's NXT.NOW™ framework, which aims to enhance 'Human Centric Experience', and focuses on investing in emerging technologies and solutions that enable digital transformation and meet the evolving needs of the customer.

Tech Mahindra and Espressive Partner to Provide Automated and Cost-Effective Digital Workplace Assistance

Tech Mahindra, a leading provider of digital transformation, consulting, and business re-engineering services and solutions, announced a partnership with Espressive, a pioneer in automating digital workplace assistance. The partnership will offer both their customers autonomous and cost-effective work environment assistance through Espressive Barista, an AI-based virtual support agent (VSA). Together, Tech Mahindra and Espressive will enable organizations that are looking to outsource and automate service desk requests to drive productivity and enhance the employee experience. Espressive will combine its no-code platform with Tech Mahindra's innovative technology stack to support near-instant automation and resolution of employee requests, such as resetting passwords, accessing DocuSign, connecting to virtual private networks, and more. The platform's advanced Natural Language Processing (NLP), Natural Language Understanding (NLU), and machine learning capabilities will ensure responses are highly personalized to reassure employees that their requests have been fully understood and resolved in real time. Birendra Sen, Business Head, Business Process Services, Tech Mahindra, said, "Enterprises are increasingly looking at automation in response to increased customer demand in a digital first world. An intelligent virtual agent is one such capability that is gaining a lot of attention. Our partnership with Espressive gives us an AI-based VSA that will help our customers significantly reduce the time taken to process customer requests. Tasks that previously took hours can now be completed in real time. This allows employees to focus on higher-skilled roles and technologies, thereby improving MTTR (mean time to recovery, mean time to restore)." The

ticket deflection rate of Espressive Barista coupled with Tech Mahindra's innovative and user-centric digital experiences will enable customers to increase competence through automation and remain ahead of the curve in the services market. The partnership will also help their customers with employee retention while gaining service management efficiencies. Pat Calhoun, Founder and CEO, Espressive, says: "Gone are the days of building virtual support agents in-house. Espressive and Tech Mahindra allow CIOs and IT leaders to develop a dynamic digital workplace with a purpose built virtual agent that delivers the highest deflection rates in the industry, while enabling their teams to focus on outcomes. Our proprietary and domain-specific Large Language Model (LLM) has been trained on over 4 billion phrases across 15 enterprise departments and can operate in over 100 languages." The partnership with Espressive is in line with Tech Mahindra's NXT.NOW™ framework, which aims to enhance 'Human Centric Experience', with a focus on investing in emerging technologies and solutions that enable digital transformation and meet the evolving needs of the customer.

Zain Bahrain Adds Brunei to Global Data Roaming

Zain Bahrain said it has extended its Global Data Roaming passes coverage services to Brunei, making it the widest Global Data roaming pass coverage telco in the Kingdom, covering 109 destinations. Zain Bahrain said it meets the communication needs of its traveling customers with various roaming passes starting from BHD 5.5 with a validity of up to 30 days. Zain has implemented multiple controls to ensure customers are not charged extra data fees. These controls include that the mobile will only select the networks included in the roaming add-on automatically. If the user manually selects a network not part of the partner's list, then the data roaming will not connect, and no data usage charge will be possible. Further, a message notification will be sent once the data allowance has been consumed and the data roaming service will be stopped. Jaffar Abdulla, Zain Bahrain Wholesale & Roaming Manager, commented, "Zain Bahrain is continuously enhancing its roaming coverage, and by adding Brunei to the Global Data Roaming Passes, our customers can stay in touch while roaming seamlessly in 109 destinations through 183 roaming partners, across six continents.

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
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cmiiconnect@cmi.chinamobile.com

ARTICLE

CMI Invests to Drive the Development of the Digital Economy in MEA

5G networks will account for nearly a fifth of mobile connections in the Middle East and Africa (MEA) by 2025, and almost half of connections in the Gulf Cooperation Council (GCC) states, according to the GSMA. With the backing of China Mobile, China Mobile International (CMI) remains committed to the region, providing global network resources and integrated solutions to help carriers and businesses tap into the opportunities that 5G will bring.

Enhancing connections between MEA and the world

As one of the industry leaders, CMI is connecting the world and driving global adoption of 5G. Its extensive global infrastructure supports customers in MEA with reliable, scalable and resilient network resources.

The 45,000-km 2Africa submarine cable is an ambitious project to interconnect Africa, Europe (eastward via Egypt) and Asia (via Saudi Arabia). It was announced by CMI and other partners in May 2020, with 26 out of a total of 46 landings completed by February 2023. When 2Africa goes live in 2024, it will deliver more than the total combined capacity of all subsea cables currently serving Africa, with a design capacity of up to 180 Terabits per second (Tbps).

The only Chinese company investing in the project, CMI is committed to the further growth of 4G in MEA and the continued roll-out of 5G and fixed broadband services. Its mission is to help bring connectivity to underserved and rural areas across the region while enhancing network resilience and global connectivity to benefit businesses and individuals throughout MEA.

As a gateway to international connectivity, the 2Africa cable will also help to drive the upgrade and expansion of telecommunications networks in the region. It will offer customers seamless links between Africa and Europe, further interconnecting with CMI's SEA-ME-WE 5 (SMW-5) and Asia-Africa-Europe 1 (AAE-1) subsea cable resources to extend connectivity to Asia. This will support the development of a thriving internet ecosystem, especially for underserved communities across Africa.

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2Africa is an important milestone in CMI's global development strategy. Offering ample capacity and faster transmission will allow CMI to help the nations of MEA to further develop their digital economy today and in the future.

Expanding regional infrastructure to serve MEA

CMI continues to enhance regional telecom infrastructure in MEA by investing in network resources and expanding its footprint to better serve local customers and support business development. CMI currently has 80 submarine and terrestrial cables that provide total network capacity

of over 123T. These include 15 submarine cables and 23 terrestrial cables in which CMI has directly invested, such as the 20,000-km undersea SMW-5 cable between Egypt and Singapore. In addition, more than 30 of CMI's 232 Points of Presence (PoPs) are located in the Middle East and major African countries, including UAE, South Africa, Kenya and Nigeria. Together with CMI's 80 plus cloud connect PoPs, this creates a strong global network that provides direct internet access and internet transit services for MEA at lower cost.

On March 7, 2023, CMI announced the successful launch of its Oman Muscat MC1 PoP. CMI's second PoP in Oman, it is located within the carrier-neutral Equinix MC1 data center in Barka. This data center is also a landing station for multiple submarine cable systems, reinforcing the country's importance as a network hub bridging Asia, Africa and Europe.

Nurturing the telecoms ecosystem

In coming years, the Middle East will benefit hugely from the introduction of developments like smart city technologies, digital financial services and the Internet of Vehicles (IoV). CMI continues to work with partners like Zain KSA, Etisalat Egypt and Master Power Technologies etc. in driving the development and adoption of 5G, IoT and IDC solutions to boost digital transformation and advance the region.

With telecom operators and solutions providers in MEA building the infrastructure and solutions to make innovations possible for consumers, business and industry, CMI is delighted and dedicated to working with partners across the region to help nurture the ecosystem for a smarter and more connected future. Our investments in collaboration and infrastructure in MEA underscore the region's importance to CMI's vision of a digitalized future where the global information civilization is an empowering reality for all.

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About 2Africa

2Africa is a 45,000 km subsea cable system and the largest cable project in the world. It will be the first system to provide continuous capacity around the African continent while connecting countries in Africa, Asia (including the Middle East) and Europe. The system will facilitate communications for over 3 billion people - over 30% of the world's population. It will drive a unique ecosystem that will boost digital transformation for applications including healthcare, education, and financial services for 33 countries across three continents.

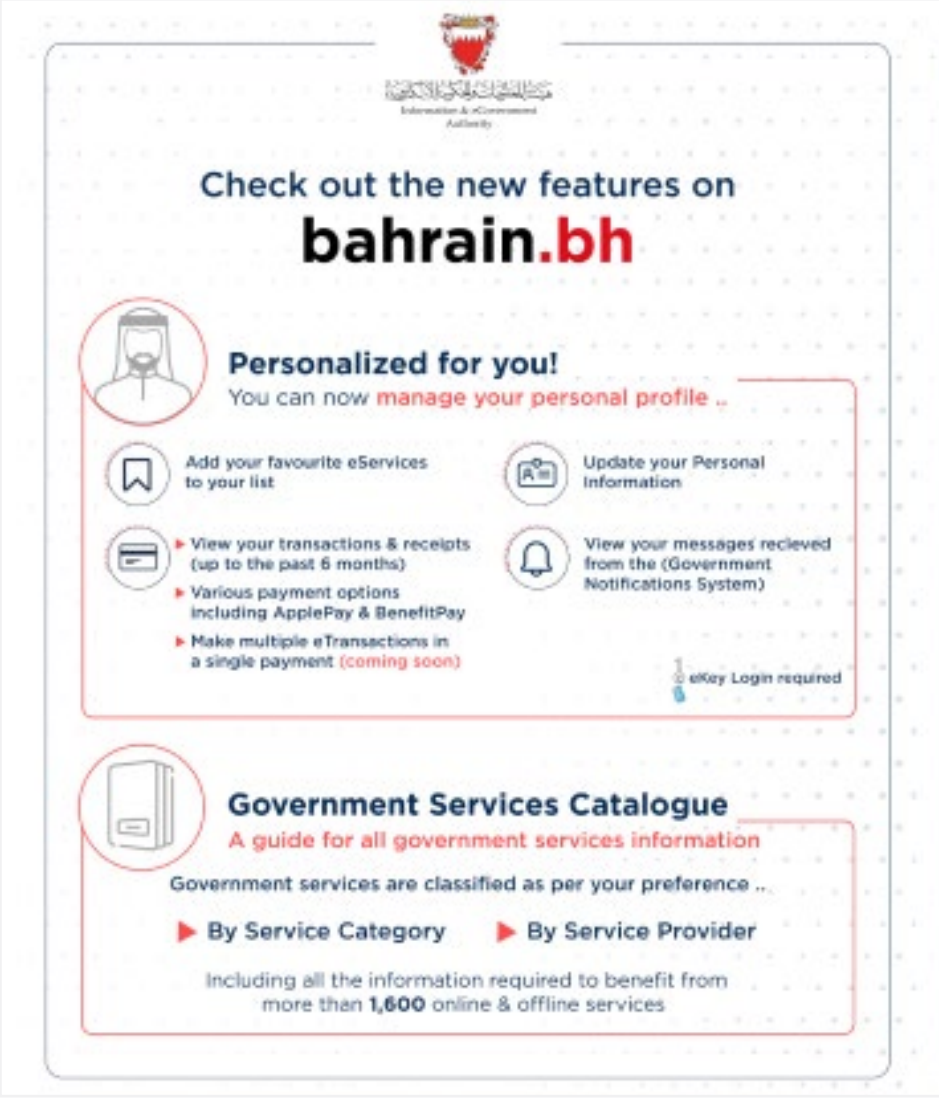
2Africa is funded by a consortium of global partners. The consortium includes eight members, namely, Bayobab, center3, China Mobile International, Meta, Orange, Telecom Egypt, Vodafone, and WIOCC.

Learn more:
https://www.2africacable.net/

REGIONAL NEWS

iGA Announces Launch of New Features on bahrain.bh

The Chief Executive of the Information & eGovernment Authority (iGA), Mohammed Al Qaed, has announced new features to the national portal Bahrain.bh that will reinforce its user experience. The new features include the Personalized Page (Personalization), which can be accessed by eKey login. Through this feature, a user may easily select his/ her eServices to be in his/ her "Favorite eServices List". Within this page, a user may also update his/ her personal information, view the notifications received from various government entities through the 'Government Notifications System' including reminders of government appointments, expiration of the official documents due for renewal and other important notifications. As part of the enhancement, the user will also be able to view the history of his/ her transactions and receipts completed online over the past 6 months and benefit from various payment options including Apple Pay & BenefitPay. A new feature will also be added soon, which allows users to benefit from Unified Payment for all transactions. Al Qaed also announced the enhanced "Ggovernment Services catalogue", which consists of a comprehensive guide related to all government services information will be available, including its procedures, requirements, etc., with the ability to classify them according to the service provider or service category which may facilitate the Search process. Al Qaed highlighted that Payment transactions have been simplified in bahrain.bh by adding the save payment method feature, which optionally and securely saves the preferred payment card to complete transactions easier and faster, in addition, ApplePay and Benefit Pay have been added to payment methods to be in-line with recent trends and user lifestyles. Enhancements have been made on the technical infrastructure of bahrain.bh, mainly on its capacity, responsiveness and compatibility with all screens, mobile phones and smart devices. "In light of the expansion in the digital transformation, iGA has always been keen to take user experience as a priority in utilizing e-Channels for the government services and mainly the National portal to complete all their transactions quickly, smoothly and securely," he added. He also said that iGA is committed towards achieving excellence in government services provided to citizens and residents. He said: "iGA is always keen to adopt innovative initiatives, ideas and suggestions received by the public through the National Suggestions and Complaint System (Tawasul) and Tawasul App as well as the social media. iGA also will continue the next phases of the portal enhancement to be announced during the current year, ensuring meeting the aspirations of people and the best practices of the United Nations in the field of eGovernment."



TDRA: 300,000 Websites Registered in .ae in 2023

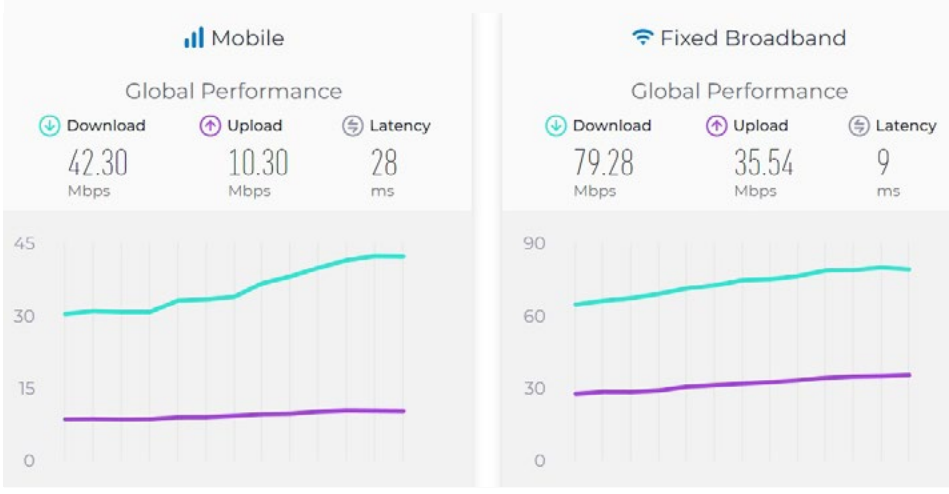
The Telecommunications and Digital Government Regulatory Authority (TDRA) announced the registration of more than 46,000 new domain names in the UAE national domain .ae in 2022, bringing the total number of registered domain names to 300,000 until the first quarter of 2023, an increase rate of nearly 20% compared to 2022. Thus, .ae is the most used national domain and one of the fastest growing domains in the Arab region. This increase reflects the interest of government entities, individuals and companies to use the national domain due to its benefits, including giving credibility to the work of the registered entity, in addition to preserving the intellectual and commercial property rights of trademark owners. .ae has many features, most importantly providing the best user experience, availability of distinguished names and abbreviations with the ability to match the name to the official website, trademark, e-mail or blog. Entities and individuals can register their activities automatically and, in a few minutes, through a list of TDRA-approved registrars to register domain names. The list is available on TDRA's official website. Commenting on the importance of registering entities and individuals in .ae, Eng. Abdulrahman Al Marzouqi, Director of Policies and Programs Department at TDRA, said: "The UAE has the most developed and competitive economy in the region, and this gives an important advantage for businesses and companies that own a .ae domain, as it enhances the confidence of customers and partners with the organization that owns the domain. This is added to many benefits, including the ease of obtaining a domain, the speed of the procedure, and the possibility of obtaining a name that matches the nature of the business or its name. Today, we have 23 accredited companies in the UAE competing in providing domain registration services at competitive prices." Al Marzouqi added: "The domain name is an integral part of the trademark of any organization, and we at TDRA attach exceptional importance to the protection of trademark owners. We have embodied this by developing a fair dispute policy to protect trademark owners. TDRA also uses the services of the World Intellectual Property Organization to make unbiased judgments." In addition to facilitating the identification of the entity and optimizing it on search engine, .ae facilitates the follow-up of the registration process and registrants to achieve a secure digital society. This is achieved by developing and implementing clear policies that prevent misuse of technology and safeguard the digital society. The steady increase in the number of registrants in.ae, which amounted to 20% last year, reflects the economic importance of the UAE, as a major economic hub in the Middle East. Examples of international companies that use the .ae domain include, but are not limited to, Amazon and Google. In order to develop the UAE national domain, .ae website, supported by ChatGPT, was launched this year. It provides several advantages such as speed and the suggestion of distinctive names based on the user's description of their commercial activity. ChatGPT technology also supports search in Arabic and the local dialect in addition to the English language.

Egyptian Government Sells 9.5% Stake in Telecom Egypt

Egypt's Ministry of Finance (MoF) has confirmed the sale of a 9.5% stake in local fixed line incumbent Telecom Egypt (TE) for around EGP3.747 billion (USD121 million). Announcing the development – which has reduced the government's stake in TE to 70.5% – the Ministry revealed that the sale of a further 0.5% stake in the company got underway yesterday (14 May) and will run until 25 May, although it noted this second tranche of shares is only being offered to TE employees. According to regional news outlet Zawya, a large portion of the 9.5% stake recently sold was acquired by local investors, with foreign investors laying claim to just a limited number of the shares that had been offered up. Commenting on the stake sale, a statement issued by the MoF noted that the development formed part of government efforts to expand the ownership base of state-owned companies, with a view to 'maximizing the contributions of the private sector in economic activity'.

Iran Fixed Internet Speed Improves Slightly in April

The speed of fixed wireless internet has increased in April 2023, while that of mobile internet declined compared to the previous month, according to the Speedtest web service's latest survey on global internet speed. Data released by Speedtest.net show Iran's internet speed (according to the median index) settled one place higher for fixed wireless internet while that of mobile declined one place compared to the previous month. The website used two median and mean (average) indicators to measure the ranking and quality of internet worldwide. The mean index is the average, but the median is the middle point of statistical data. It claims that global rankings are reported based on median download speed "to best reflect the speeds a user is likely to experience in a market." Iran's fixed internet speed ranked 145th (out of 180 countries) while mobile internet speed was at 62nd place (out of 138 countries) in April. Median fixed internet download speed is currently 11.97 Mbps, upload speed is 2.28 Mbps and latency is 30 milliseconds. This is while the median mobile internet download speed is 35.98 Mbps, upload speed is 10.95 Mbps and latency is 29 milliseconds. According to Speedtest, the median global mobile internet download speed is 42.07 Mbps, upload speed is 10.33 Mbps and latency is 28 milliseconds. On fixed internet, download speed is 80.12 Mbps, upload speed is 35.13 Mbps and latency is 9 milliseconds. Qatar's median mobile internet download speed stood at 189.98 Mbps in March to rank first in the world. It was followed by the UAE with 175.34 Mbps, Macau with 171.73 Mbps, Kuwait with 139.03 Mbps, Norway with 131.16 Mbps, Denmark with 118.83 Mbps, Bahrain with 115 Mbps, South Korea with 110.59 Mbps, China with 110.10 Mbps and the Netherlands with 109.13 Mbps. For median fixed internet speed, Singapore ranked first with 242.01 Mbps. Chile with 222.49 Mbps, the UAE with 216.78 Mbps, China with 215.8 Mbps, Hong Kong with 205.19 Mbps, Thailand with 204.26 Mbps, the US with 202.4 Mbps, Denmark with 199.94 Mbps, Spain with 175.96 Mbps and Romania with 174.26 Mbps came next. The Iranian government has launched a fiber optic project to improve the quality of fixed internet and eliminate the backlog of internet registration by expanding facilities for users and operators. A knowledge-based company has produced telecommunication equipment that are of superior quality and can help prevent a significant foreign currency outflow from importing counterparts. The products of Ava Communication Industries Company in the fields of IP Multimedia Subsystems (IMS) and Next Generation Networks (NGN) have successfully replaced European and Chinese brands in the country's telecommunication network, according to the company's CEO. "In recent years, the company's products have obtained all relevant approvals. They are being used by public and private companies and organizations, and possess the most advanced technologies in this field," Gholamali Hassani was also quoted as saying by the news portal of the Vice Presidency for Science and Technology. He noted that the company is active in the design, production and development of call centers, data networks and next-generation telecom systems. "The constant monitoring and updating of product security, customization and integration of communications portal, as well as its one-third lower price compared to foreign counterparts, are the main advantages of the company's products," he said. "At present, more than 5 million telecommunication switches produced by the company have been purchased by the Telecommunication Company of Iran, Telecommunication Infrastructure Company, fixed communications providers, most ministries and major organizations." Referring to the production of next-generation telecom centers, Hassani said that in view of the need to integrate communications in organizations, the company started designing and producing next-generation call centers to meet domestic needs. "Based on the latest telecommunication technology, the company's call center is considered the first and only of its kind completely designed and produced in Iran," he added. According to the CEO, the company's projects have prevented the outflow of millions of dollars, while making the country self-sufficient in this strategic area. "In case of government support, the outflow of more than €30 million will be prevented," he added. Stressing that cloud-based IMS/NGN products are the latest technology in this field, Hassani said only a few companies in the world produce these types of products that have huge export potentials. "The company has created 100 direct jobs, but with the increase in production and the development of new products, it will be possible to create 1,000 direct and 10,000 indirect jobs in the next two years," he said.



e& Celebrates the Successful Completion of Its 'Women in Leadership' Program in Partnership with Nokia and UN Women

e&, in partnership with Nokia and supported by UN Women, recently successfully concluded its first 'Women in Leadership' program, solidifying its commitment to promoting gender diversity, empowering women and encouraging sustainable business practices. The program is part of the Nokia-UN Women collaboration series. The closing event at e&'s Open Innovation Centre in Dubai marked a significant milestone as the first in-person ceremony for Nokia's training program in the Middle East. The event included 20 participants and 14 panelists to wrap up the program with presentations, pitches and discussion. The 'Women in Leadership' program is designed to increase the number of women in decision-making roles within the tech sector and integrate gender-balanced approaches to innovative business opportunities and technology solutions. The program aligns with the UN Women's Empowerment Principles, of which both e& and Nokia are signatories, with the goal to empower women to pursue leadership roles and contribute to a better future for all. Dena Al Mansoori, Group Chief HR Officer, e& said: "A year ago, we launched the Women in Leadership program with Nokia and UN Women fueled by an unwavering belief that collectively, we can make real meaningful change. Today, I'm inspired by the remarkable ideas and solutions generated by our participants all determined to leave a positive impact on our communities. We are proud to be able to shape a different narrative, break barriers, and forge a path for women in tech where a more inclusive leadership can thrive." During the six-month program, participants tackled four essential challenges pertaining to the ICT sector. These challenges included promoting eco-friendly options in the UAE, ensuring data transparency, managing energy consumption for e& subscribers, and addressing barriers to women in the tech industry. Rima Manna, VP Middle East Market Unit at Nokia, said: "We're thrilled to have held the first face-to-face closing event in the Middle East with e& and UN Women, showcasing the ideas generated by these extraordinary women. Throughout the program, the participants not only embraced the challenges related to sustainability and women's empowerment but also demonstrated a remarkable capacity for collaboration, innovation, and critical thinking, leaving a lasting mark of excellence." The module journey of the program supported the participants in choosing their challenges that focused on ESG, inclusion and diversity, partnering to work beyond borders and creating innovative business solutions. The challenge winners presented ground-breaking design concepts and prototypes, receiving well-deserved recognition for their innovative ideas at the closing event. The successful conclusion of the 'Women in Leadership' program represents a pivotal moment in fostering gender equity in the tech industry. By breaking barriers, forging new paths, and empowering inclusive leadership, e& and its partners continue to make significant strides towards creating a more diverse and prosperous future for all.

Bahrain 'Ranks 7th on the Speedtest Global Index'

Bahrain has been ranked 7th on the Speedtest Global Index for April 2023 showcasing its commitment to providing exceptional mobile and fixed broadband speeds to its community, report said. As a leading telecommunications provider in Bahrain, stc Bahrain has played a significant role in contributing to this accomplishment. stc's continuous efforts to enhance network infrastructure, optimize performance, and invest in cutting-edge technologies have contributed to the overall success of Bahrain's digital connectivity landscape, an stc release said. stc has launched the latest 5G routers and 5G MiFis, empowering our customers to achieve incredibly high speeds and enjoy the full potential of our advanced network infrastructure. stc Bahrain has also played an important role in elevating the speed rankings with its mega expansion efforts that have increased the network capacity by over four times, contributing significantly to our impressive speed performance. With the deployment of cutting-edge technologies, its network now reaches speeds exceeding 3 Gbps, providing stc's customers with an unparalleled browsing experience. Furthermore, stc has established the first 5.5G network foundation in Bahrain, further solidifying our commitment to pushing the boundaries of connectivity. Moving forward, stc Bahrain will continue to invest in cutting-edge technologies, expand network coverage, and introduce innovative services to further elevate the digital experience for its customers. It remains committed to supporting Bahrain's vision of becoming a leading hub for technology, innovation, and connectivity in the region.

Egypt's GASTEC Launches Digital Transformation Project to Reduce Costs

State-owned Egyptian International Gas Technology (GASTEC) has launched a digital transformation project with global technology company SAP and Cairo-based implementation partner ECS. The project aims to automate and streamline business processes, while increasing the agility of operations at GASTEC. The work scope includes implementing the latest SAP ERP technology - SAP S/4HANA - in vital areas, including finance, sales, warehouses, and human resources. The project aims to simplify and automate business processes, reduce the total cost, and provide complete visibility and control over operations. GASTEC, affiliated to the Egyptian Petroleum Sector, was established in 1996. The company owns the largest fueling station network in Egypt, including a large base of compressors with different capacities and a number of stations under construction.

Saudi Arabia Records Over 32pc Growth in E-Commerce in Q1

The e-commerce industry in the Kingdom of Saudi Arabia has shown remarkable growth, with an annual increase of over 32% during the first quarter of 2023. According to the Ministry of Commerce's business bulletin, the number of commercial registers issued during this period soared to 4,093 from last year's figure of 3,499. The bulletin stated that Riyadh had issued the most commercial registers at 13,195, followed by Makkah with 8,605, and the Eastern Region with 5,294. Madinah and Al-Qassim issued 1,649 and 1,107 registers, respectively. The growth of the e-commerce business system is one of the objectives of the National Transformation Program, which supports the realization of Saudi Arabia's Vision 2030. As one of the top 10 growing countries in the e-commerce field, with a growth rate of 17% in Q1 2023, the Kingdom recognizes the importance of e-commerce in enhancing the national economy, reported SPA. The Saudi e-commerce system supports entrepreneurs willing to transition from regular trade to e-commerce through entities that offer electronic payment, digital marketing, and technical solutions services. These entities also provide services related to electronic markets, logistical solutions, and platforms for developing electronic stores, stated the report. Saudi E-Commerce Council of the Ministry of Commerce aims to strengthen the reliability of e-commerce, boost its contributions to the national economy, and stimulate and develop e-commerce activities in the kingdom, it added.

TRA Bahrain Hosted Global 6G Summit in Bahrain

The Telecommunications Regulatory Authority (TRA) hosted the Global 6G Summit on May 3-4 in Bahrain. The hybrid format event brought together representatives from the telecommunications sector and related industries, as well as decision-makers from around the world. The event offered a platform for exploring the most recent developments in Next-Gen mobile communications. Attendees exchanged knowledge, ideas, and best practices aimed at furthering the evolution of this advanced technology. This international gathering of communication experts highlighted Bahrain's industry leadership and commitment to innovation. Leading industry professionals from Bahrain, the United Arab Emirates, Jordan, Thailand, China, Europe, the United Kingdom, and Canada, among others, delivered panel discussions and keynote addresses. The event focused on a variety of topics related to 6G network technologies, including research and coordination of 6G standards, the economic potential of 6G, and the promotion of a more sustainable future through 6G adoption. These advanced technologies contribute significantly to digital economic growth and drive digital transformation across all industries. Moreover, they support the development of cutting-edge technologies, such as Artificial Intelligence and other modern innovations.

Jordan Ranks 70th in Digital Economy

Minister of Digital Economy, Ahmad Hanandeh, stated that Jordan is ranked 70th worldwide and 5th in the Arab economy and digital transformation. Hanandeh affirmed in a meeting for startup businesses held Tuesday afternoon, that the entrepreneurial sector contributes to 25% to startup Arab companies as Jordan takes high ranking in foreign investment. He expressed that the ministry seeks to support youth and entrepreneurs to implement projects in the real world locally and worldwide. He added that the ministry worked on developing an entrepreneurship policy to support and develop the entrepreneurial environment in Jordan, support companies to expand locally and globally, obtain financing, and create a stimulating and supportive environment for them.

MTCIT Holds First Forum on Government Digital Transformation

Deliberations of the first edition of the Government Digital Transformation Forum began at Oman Convention and Exhibition Centre with the participation of ten government units. As many as 200 participants and 25 speakers are taking part in the forum organised by the Ministry of Transport, Communications and Information Technology (MTCIT). At the two-day event, new digital services, solutions and products in the government sector will be launched. The forum will highlight efforts and achievements of the government sector in Oman in the field of digital transformation, review distinguished regional and global practices, ways of improving institutional cooperation and building government relations, as well as exchanging experiences in digital transformation. The forum will address the most important challenges and obstacles facing the implementation of government digital transformation and propose new solutions to overcome these, in addition to exploring new tools that empower national competencies to ensure sustainability, continuous improvement and keeping pace with global changes. The event will have four main themes – digital transformation, advanced technologies and maximizing benefits of modern technologies to accelerate digital transformation, user's digital experience, and data analysis. A dialogue session was held on Tuesday with the participation of a number of stakeholders from government units. The session addressed prospects of government digital transformation. The session also discussed the importance of managing the culture of digital change to create a flexible and innovative government apparatus equipped for the future, the need to hone national skills, empower digital capabilities and promote government digital innovation. The forum is expected to come up with a set of recommendations to support government digital integration. It will also present new proposals to accelerate digitalization of government services, transfer and exchange of knowledge on best practices in the field of digital transformation, and provide feedback on the challenges facing the implementation of digital transformation, while creating an updated database for specialists in the field of digital transformation.

Mobile Phone Subscribers in Jordan Reach 7.6 Million

The number of mobile phone subscriptions in Jordan experienced growth in the first quarter of 2023, registering an increase of 5.46 percent compared to the same period in the previous year. According to data released by the Telecommunications Regulatory Commission (TRC), the total number of mobile phone subscribers in the first quarter of this year reached an impressive 7.6 million subscribers. This figure indicates a staggering growth of 398,186 thousand subscribers compared to the same period in 2022 when the subscriber count stood at 7.2 million. The TRC emphasized that these subscription numbers represent the market share of the three major operators within Jordan. Earlier, the authority confirmed that these figures accurately reflect the reality and size of the local market, dismissing any concerns of inflation or misrepresentation, according to Al-Mamlaka TV.

Huawei Concludes 6th Edition of ICT Competition in Kuwait

In partnership with The Kuwait Foundation for the Advancement of Science (KFAS) and in cooperation with the Communication and Information Technology Regulatory Authority (CITRA), Huawei concluded its flagship annual Huawei ICT Competition 2022-2023 award ceremony in Kuwait. The initiative aims at bolstering the overall ICT ecosystem through stimulate local talent who will be the future Kuwaiti generation achieving the national development plans and ambitious in line with Kuwait Vision 2035. This year's competition was concluded during a ceremony held at Huawei Head office, senior executives from CITRA, KFAS, Huawei and universities. From October to December, hundreds of undergraduate students have participated in the competition, which is being held virtually. Winners of the regional competitions have received a certification, future learning opportunities, trophy and an internship. Shaymaa Al-Turkait board member of CITRA said: "We are glad to partner with Huawei on a prestigious program such as the Huawei Middle East ICT Competition. The ICT sector is currently playing a significant part in strengthening Kuwait's global competitiveness and overall economic growth. Collaborating with a global technology company reconfirms our commitment to empower our nation's youth and prepare a future generation for Kuwait's digital transformation journey" Victor Liu Vice President of Huawei Carrier Business Group, Gulf North, said: "As we known, ICT is one of the most important sectors in today's society, The ICT industry is leading the development of various new areas, such as AI, 5G and cloud, these innovative technologies are bringing unlimited possibilities to our society". The competition further promotes creativity amongst students by acting as a bridge between the classroom and the workforce, enhancing students' future employment opportunities. The training courses and competition program this year focus on modern technologies such as artificial intelligence (AI), cloud computing, data storage, big data, Security, Datacom, WLAN and enhancing communication between talented youth in the region. The competition is considered one of the auxiliary channels for the current efforts made by governments, universities, and educational institutions in the field of talent discovery and support to prepare future leaders who will be responsible for leading the development process by relying on technology.

Number of 3G and 4G Users Up in Pakistan

The number of 3G and 4G users in Pakistan increased by 0.69 million from 124.16 million by end February to 124.85 million by end March, the Pakistan Telecommunication Authority (PTA) data revealed. The number of cellular subscribers in Pakistan increased from 193.85 million by end February to 194.12 million by end March. The Monthly Next Generation Mobile Service (NGMS) penetration increased from 52.58 per cent by end February to 52.79 per cent by end March. The broadband penetration increased from 53.92 per cent by end February to 54.13 per cent by end March. The cellular teledensity has declined from 82.1 per cent by end February to 82.08 per cent by end March. Total teledensity decreased from 83.2 per cent by end February to 83.17 per cent by end March. Jazz's total count for 3G users declined from 4.736 million by end February to 4.626 million by end March registering a decrease of 0.11 million. Jazz 4G users jumped from 42.544 million by end February to 42.916 million by end March. Zong 3G subscribers decreased from 2.661 million by end February to 2.643 million by end March, while the number of 4G users increased from 32.096 million by end February to 32.312 million by end March. Telenor 3G subscribers decreased from 2.980 million by end February to 2.939 million while the number of 4G users of Telenor increased from 22.932 million by end February to 22.996 million by end March. Ufone 3G users stood at 2.811 million by end March compared to 2.844 million by end February. The number of 4G users of Ufone increased from 11.925 million by end February to 12.170 million by end March, registering a 0.245 million increase during the period under review. PTA received 17,092 complaints from telecom consumers against different telecom operators and cellular operators in March 2023, out of which 16,956 (99.2 per cent) were resolved. Official data revealed that the complaints were received against various telecom operators, including cellular mobile operators (CMOs), Pakistan Telecommunications Company Limited (PTCL), long-distance international (LDI) operators, wireless local loop (WLL) operators, and internet service providers (ISPs), during March. 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 March stood at 16,547, out of which, 16,460 (99.5 per cent) were addressed. According to the PTA data, 7,684 complaints were received against Jazz, out of which 7,673 (99.9 per cent) were resolved. Further, 3,081 complaints against Telenor were received, out of which, 3,078 (99.9 per cent) were resolved. Likewise, 3,964 complaints were received against Zong, out of which, 3,948 (99.6 per cent) were addressed. A total of 1,810 complaints were received against

Ufone, out of which 1,754 (96.91 per cent) were resolved. The PTA also received 141 complaints against basic telephony, out of which, 121 were addressed during March, for a resolution rate of 85.8 per cent. Furthermore, 395 complaints were received against ISPs, of which 367 (92.9 per cent) were addressed.

Arab Advisors Group Releases an Analytical Report on MENA's 5G Status

Arab Advisors Group released a new comprehensive analytical telecommunication report. The report focuses on countries across MENA with and without launched 5G services. Arab Advisors Group shed the light on 5G network expansions and coverages, as well as disclosed 5G-related indicators. As for countries without 5G launches, the report further examined the role of governmental bodies in facilitating successful 5G launches in the Middle East and North Africa, and 5G trials among telcos in preparation towards their launches. 5G technology promises to bring a massive enhancement for businesses and people, with a significant paradigm shift in communications and technology. However, the 5G promise is yet to be delivered. Governmental bodies play vital roles in facilitating and catalyzing successful 5G launches - setting clear 5G roadmaps and strategies, and publicly disclosing adequate and timely indicators to name a few. Roadmaps and strategies present governments' expectations for digitized and well-developed ICT sectors, and highlight telecom operators' part in supporting their governments' visions. The advancement of any ecosystem is also strongly tied to publicly disclosed key performance indicators ("KPIs"). Sources of similar indicators vary across the telecom industry; nevertheless, the most credible and expected source of indicators is governmental bodies. Governmental bodies are not the sole contributors towards successful 5G launches. Telecom operators play imperative part in pushing towards 5G launches through network upgrades, expansions, and 5G trials. In alignment with its summit launch, Arab Advisors Group released a new analytical report which tackles prerequisite measures by telecom operators and regulators to ensure successful 5G network launches across the MENA region. Arab Advisors Group further discusses 5G network coverages for MENA-based telecom operators, highlighting a wide range of achievements in the GCC. Lastly, we present 5G-related KPIs released by telecom regulators and operators in the Gulf. As part of its continuous reliable primary research-based analysis, Arab Advisors Group released this report which answers the following questions:

- How are MENA governmental bodies catalyzing smooth and successful 5G launches?
- Do MENA's telecom markets have adequate and timely disclosed 5G-related indicators?
- What preparation measures are telecom operators in the Arab World taking towards their 5G launches?
- How intense are 5G trials in Arab countries without commercial 5G services?
- How did the GCC's 5G markets differ during a span of 4 years in terms of coverages and expansions?

According to our findings, about 30% of the telecom operators in Arab countries without commercial 5G services announced 5G trials. The intensity of these trials is considered low, with Tunisia being the only country with sufficient 5G trial announcements between June 2019 and February 2023." Ms. Hiba Rabadi, Arab

Advisors Group's Deputy General Manager noted. "The lack of announcements may not indicate a lack of trials but rather a lack of public disclosure. Overall, the modest number of trials and their low intensity suggest that more work is needed for operators to select suitable solutions and understand network behavior in real-life situations." Added Rabadi. "One noticeable advancement in the GCC's 5G networks is the transition towards standalone 5G ("5G SA"). A few telecom operators across Kuwait, KSA, and the UAE announced transitioning from non-standalone 5G networks to 5G SA ones, while others announced testing their 5G SA networks." noted Rabadi.

YOUR CYBER SECURITY IS NOT JUST YOUR BUSINESS, IT'S OUR RESPONSIBILITY

SECURITY, NO COMPROMISE

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ARTICLE

Trust is a Cybersecurity Ecosystem; Not Just a Value

According to research by GSMA Intelligence, there will be 9.8 billion mobile connections by 2030 of which 5.3 billion will be 5G. The research suggests that if mobile adoption increases by 10%, the impact on GDP can be 1%. So connectivity can offer clear economic and social benefits.

Telecoms infrastructure serves as part of the core foundation of modern digital economies. It plays a crucial role in helping governments, at both national and transnational levels, to achieve economic growth, digital inclusion and affordable access, social mobility and environmental objectives through communication. The benefits of a digital economy for the Middle East and North Africa were highlighted in a World Bank report last year that this year predicted that Africa will have the largest share of the global workforce by 2100 making it crucial to have uptake of digital technology. In addition, as emphasized by the Open-Ended Working Group (OEWG) and the United Nations Group of Governmental Experts (GGE), security, trust and stability are essential for building and creating an inclusive cyber ecosystem.

> *Creating trust is actually a process and must be done in a structured manner which brings together all representative stakeholder voices who are committed to unified standards and also willing to take part of the responsibility for establishing a cybersecurity ecosystem.*

Trust in connectivity is essential for economic development

Without cybersecurity measures in place, trust in connectivity will remain low affecting development of economies and willingness of consumers to engage in a digital connected economy. However, trust cannot be just based on certain values or principles because in a multi-cultural world, these are just too diverse and can never by unified.

Nora Cao
Vice President of Global Government Affairs, Huawei Technologies

HUAWEI

Therefore, a framework is essential for accommodating the dynamic nature of cybersecurity – newly emerging threats, policy evolution, technology developments plus changing economic and social factors. A framework must factor in policies, practices and procedures and support all organizations with protecting their assets via a process that includes identifying, assessing and managing potential disruptions.

> *Multi-Stakeholder Partnerships (MSP) bring together different societal players (public sector, private sector, civil society, academia) working together as equals, sharing risks, and combining unique resources and competencies to address challenges or exploit opportunities in ways that one cannot achieve alone to facilitate the development of sustainable frameworks. Based on fruitful outcomes from WSIS Panel in SAMENA Leaders' Summit and best industrial knowledge above, we developed the TRUST framework, to help build the cybersecurity ecosystem holistically*

Creating trust is actually a process and must be done in a structured manner which brings together all representative stakeholder voices who are committed to unified standards and also willing to take part of the responsibility for establishing a cybersecurity ecosystem.

For example, regarding critical infrastructure (CI), between 2020 to 2022, more than 200 cyber security legislations were proposed, passed, or took effect globally. These legislations were primarily focused in Europe regions and the Asia-Pacific region. Most developing countries have incorporated CI protection legislation into general cybersecurity legislation. However, a challenge remains in that legislation should be reasonably designed in alignment with the ability to implement. This includes making legislation affordable so that a country can enforce, comply with and maintain the legislation.

What kind of framework is needed to build trust?

In the development of legislation or framework the resources of a country must be considered including financial, human, technical, infrastructural, and or institutional resources as well as political, and social circumstances in order to ensure that there isn't a 'policy implementation gap' meaning that there is a difference between the expected outcome during the policy design stage and the actual result after implementation. This tends to be a caused by two factors including an unrealistic assessment of the implementation ability of a country, and fundamentally, a lack of multi-stakeholder collaboration.

Multi-Stakeholder Partnerships (MSP) bring together different societal players (public sector, private sector, civil society, academia) working together as equals, sharing risks, and combining unique resources and competencies to address challenges or exploit opportunities in ways that one cannot achieve alone to facilitate the development of sustainable frameworks. Based on fruitful outcomes from WSIS Panel in SAMENA Leaders' Summit and best industrial knowledge above, we developed the TRUST framework, to help build the cybersecurity ecosystem holistically:

T-Technical Base: Cybersecurity is rooted in technology. Cybersecurity risk can be appropriately governed by technical measures and mitigated by technical innovation. For example, with 4G authentication, telecommunications operators authenticate users using a SIM card placed inside a smartphone or another device. However, because internet of things (IoT) connections vary in size and power consumption, as well as in the type and quantity of data they can send and receive. With the diverse range of devices and requirements required by IoT, a single SIM from a single telecommunications operator is unable to cope. 5G eliminates the need for a SIM card by assigning unique identities to each individual device, so the responsibility for authentication is shifted from the operator to individual service providers.

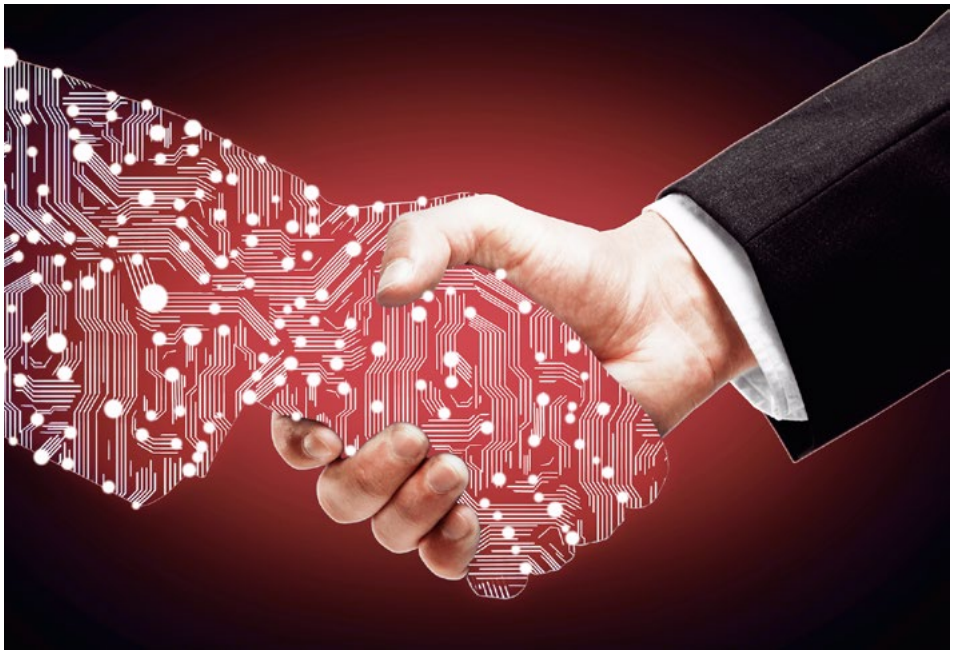
R-Responsibilities: 5G cybersecurity is a shared responsibility that involves key stakeholders including MNOs, interconnection providers, vendors, application developers, service providers and governments, each with a clearly defined set of responsibilities which (when fully met) can enable the deployment and operation of 5G systems in a secure manner. This means that only with appropriate different roles' can responsibilities be taken in a way that the ecosystem can enter a 'virtuous circle' and develop rapidly as seen in the development of the GMSA's 5G cybersecurity knowledge base 'shared responsibility model' (GSMA - 5G Cybersecurity Knowledge Base).

U-Unified Multi-stakeholders' Collaboration: Collaboration between all stakeholders is essential. Users, regulators, industry experts, governments need to leverage the collective knowledge of industry. Without this shared knowledge of the stakeholders such as the ITU, local governments, academics, ETSI, ENISA other ICT corporations and players. innovation will be stifled within the industry and risks will not be highlighted at an early stage. As Mr. Adel Mohamed Darwish, Director, Regional Offices of the International Telecommunications Union (ITU) for Arab States said "We are now faced with a global space, not only a local market. The input of private sectors and industry organizations is helpful, cybersecurity and digital transformation needs multi-stakeholder cooperation."

S-Standardized Baseline and International Common Standard to follow: As the global market grows, a standardized baseline for both ICT development and

cybersecurity together is essential to avoid fragmentation. As his Excellency Sheikh Nahayan Mabarak Al Nahyan, UAE Cabinet Member and Minister for Tolerance and Coexistence called for responsibility within the ICT industry as the industry develops and said in the opening ceremony of SAMENA Leaders' Summit: "In UAE, we share the aspiration of having a digital world that is sustainable, secure and meets present and future needs, committed to satisfying best international standards and ready to promote community engagement and support in all countries around the world." This is also demonstrated by GSMA, '5G security risks can be addressed through the deployment of coordinated and verifiable security measures based on common standards.' Developing standards for cybersecurity by aligning standards is similar to the C2C-CC and W3C consortia that have guided the development of the world wide web making it accessible to all. Developing standard processes and policies will facilitate clarity.

T-Transparency and Fairness – Governance and policy development: Policy and governance is necessary for orderly operation of markets across borders and jurisdictions, and potentially even intervention when faced with market failure. Therefore, market structures must be transparent avoiding unnecessary costs that may impede implementation but rather encourage and foster vitality. This ultimately protects consumers and users. For example, the World Trade Organisation faced the challenge of maintaining a multilateral trading system when more developed member countries have access to better quality and more timely trade information then less developed countries. The question of how to create real-time sharing of information including supply chain disruptions became a digital divide transparency challenge.



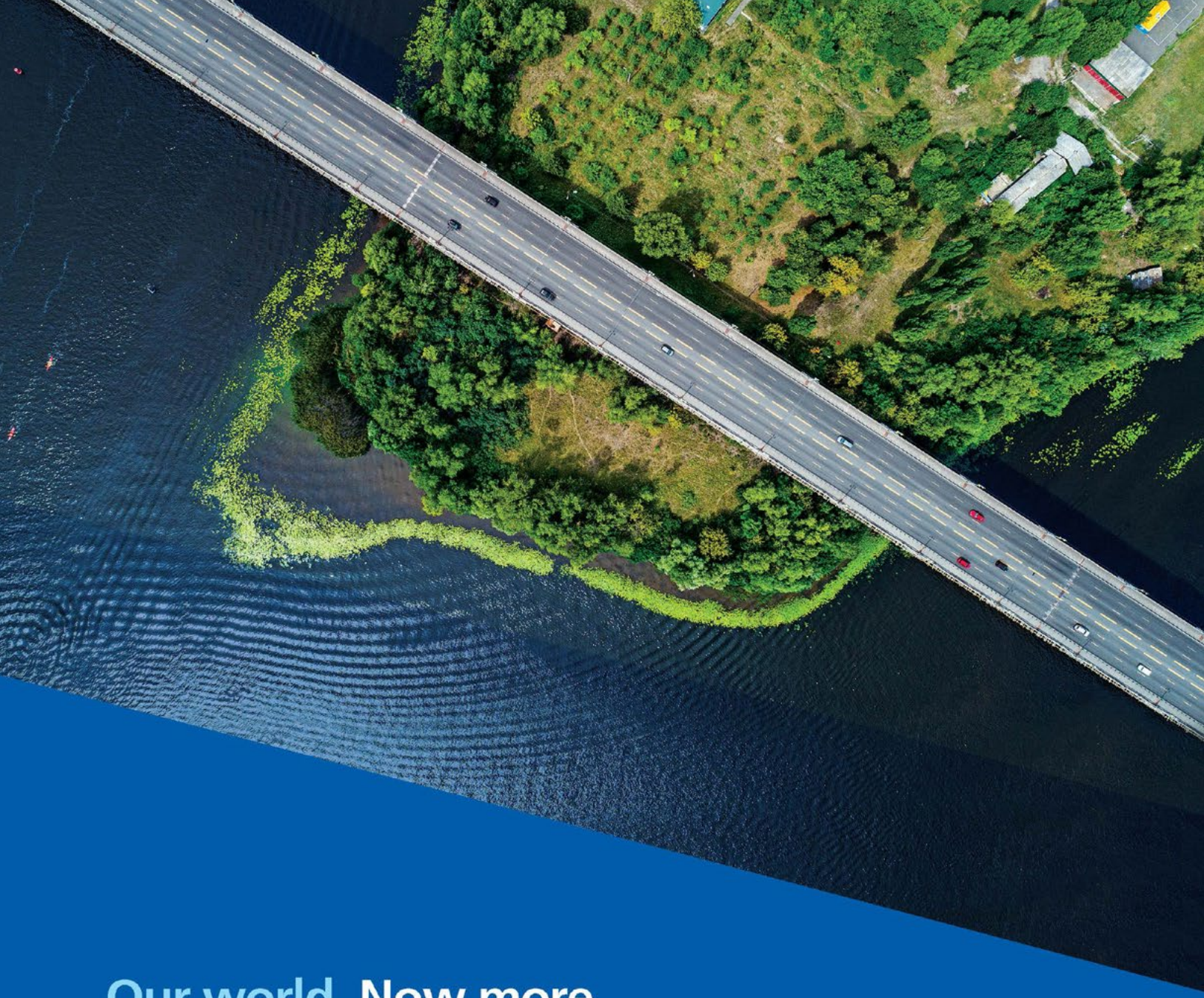
Now, just as it is important to communicate when technology is being applied such as the use of AI for checking credit ratings or resolving trade problems, it is equally important to share intelligence on security breaches, prevent cyberattacks and promote cyber resilience.

Trust requires an ecosystem

Trust cannot be an assumption of shared values and behavior but needs to be a tangible process that reflects the diverse expertise and voices of all stakeholders. Only in this way will standards be agreed and implemented.

With 5G facilitating more data exchange and opportunities it is essential that we are able to enjoy the benefits in a secure, sustainable way that protects all assets from the dangers of cyber-attacks.

According to the UN's Secretary-General's Roadmap for Digital Cooperation by 2030, every person should have safe and affordable access to the internet. Keeping society safe whether in the delivery of education, manufacturing or food delivery is essential. Connectivity is a right and all users in society deserve to be safe – whether corporations, governments or individuals. Trust is much more than just a value, it is an ecosystem.



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SATELLITE NEWS

UAE's Yahsat Targets New Tie-Ups in The Asia Pacific Region

'Yahsat Asia Week' has showcased innovative solutions of its mobility arm, Thuraya, and explored opportunities for forging new partnerships in the Asia Pacific region. Al Yah Satellite Communications Company (Yahsat), the UAE's flagship satellite solutions provider, has organized 'Yahsat Asia Week', a series of industry focused activities in Singapore from June 5 to 9, 2023, as part of its ongoing efforts to strengthen its presence in global markets. 'Yahsat Asia Week' consists of Yahsat's first-ever Asia Partner Conference bringing together service partners from 8 countries in the region under the theme 'Partner Pioneers' as well as participation in CommunicAsia 2023 and Asia Satellite Business Week. During the Asia Week, Thuraya Telecommunications Company, the Group's mobility arm, is showcasing its latest and best-selling solutions and services, as it is targeting growth across Asia-Pacific markets with new commercial opportunities. The Asia-Pacific satellite communications market is expected to grow at an 8.5% CAGR between 2022 and 2032. As such Thuraya recognises a surging demand for satellite services in the region. At the Asia Partner Conference on 5 June, regional service and technology partners learned about Yahsat's regional growth strategy as well as being given exclusive previews of Thuraya's next-generation broadband solutions. The conference was attended by more than 25 entities from the region, representing key markets including Vietnam, Philippines, Malaysia, Singapore, South Korea, China, Indonesia, and Australia. It focused on areas of higher growth and profitability across various industry verticals, such as Enterprise, Consumers, Maritime, and Government. Developed in collaboration with the industry leader, Cobham SATCOM, Thuraya's next-generation broadband solutions are poised to address strategically important and diversified market segments within Internet of Things (IoT) and Maritime. Ali Al Hashemi, Group Chief Executive Officer of Yahsat, said: "Yahsat and Thuraya have a longstanding presence in Asia through our extensive satellite network, wide-ranging solutions, and enduring partnerships. These strong fundamentals have allowed us to build a solid footing in the satellite communications sector both regionally and globally. "Encapsulating three influential events, 'Yahsat Asia Week' reinforces our commitment to this rapidly growing region. With our unique blend of advanced and affordable products, we have a time-tested reputation for feature-packed devices, which make a real difference to the way people live and work in Asia." The conference concluded with an exciting race-style sailing event, which demonstrated the strengths of Thuraya's maritime portfolio, while serving to forge stronger relationships among partners. At CommunicAsia 2023, Thuraya is showcasing its award-winning solutions including Thuraya MarineStar and Thuraya Push-To-Talk (PTT) that are immensely popular due to their versatility, flexibility, and affordability. MarineStar has become the leading maritime solution in its class across Asia and other regional markets, solidifying Thuraya's position as a technology and solution-driven brand. Through previews of its next-generation broadband product line, Thuraya is also keen to provide CommunicAsia visitors with first-hand experience of the advanced satcom capabilities that Yahsat is envisioning for its mobility business. Thuraya is also participating in a panel at Asia Satellite Business Week, entitled 'Mobile Satellite Connectivity Services: Next Steps for IoT & Direct to Device.' In 2022, Thuraya, the mobility arm of Yahsat, contributed 19% of the Group's total revenue, registering revenue increas-

es in Voice (+4%), Maritime (+6%), and Data Services (+16%). Even more exciting opportunities lie ahead as Yahsat's sixth satellite, Thuraya 4-NGS, set for launch in H1 2024, becomes operational in 2025. Thuraya's new product line is strategically designed to leverage Thuraya 4-NGS's advanced capabilities. Prior to the partner conference and CommunicAsia, Thuraya's senior executives were in Jakarta to attend the APSAT (Asia Pacific Satellite) International Conference, further underscoring Yahsat's commitment to the Asia-Pacific region. Yahsat has been steadily strengthening its ties across the region by developing affordable solution-driven advanced satellite technology that provides underserved communities across Asia with critical communication capabilities. The technology not only empowers further economic and business development in these areas, but is also instrumental in saving lives as in the case of the seven Filipino fishermen, who were rescued at sea in 2022 after making an emergency call for help on their Thuraya XT-LITE satellite phone.

Netlinkz Set to Deliver Starlink Internet to Philippines's Islands After a Deal with Major Telco

Global network solutions vendor Netlinkz (ASX:NET) has made further inroads into the Southeast Asian market after signing a strategic partnership with PT&T Corp, a major telco company based in the Philippines. PT&T will be using Netlinkz's products to boost its connectivity and accelerate the digital transformation for the company's various customer sectors. They bring significant benefits to the Philippine archipelago, where connectivity is often unreliable due to distance and terrain. (Ten of its 7100 islands have populations of more than one million). Netlinkz believes the combined strengths of Netlinkz, Starlink, and PT&T will bridge the connectivity gap by empowering the archipelago with the much-needed, robust networking solutions. By leveraging Starlink's satellite internet, many will be able to overcome geographical barriers and access reliable, high-speed connectivity. James Velasquez, the president and CEO of PT&T Corp, says many more will be able to compete fully in the digital economy. “We are thrilled to introduce Starlink to the Philippines, providing a dependable internet solution for customers who require reliable connectivity," Velasquez said. In November 2022, Netlinkz secured a deal to become a global non-exclusive reseller of the Starlink satellite-based broadband internet service developed by Elon Musk's Space-X company. This agreement meant that Netlinkz could market Starlink's satellite based high-speed, low-latency broadband internet, and the company has identified Southeast Asia as one of its target markets. The PT&T agreement came just months after Netlinkz offered its services to the Thailand market by signing a deal with ALT Telecom, a listed Thai telco company. Netlinkz is also in the process of partnering with the Hong-Kong based HGC Global Communications to build an integrated global communication platform, Network as a Service (NaaS) for enterprises, based on the company's network-as-a-service platform. Phase 1 of that will be the rollout of the NaaS for enterprises based in Thailand, followed by a rollout across other Southeast Asian regions. HGC has 1.4 million kilometers of optic fiber and currently 24 Points of Presence across the world. The goal of this partnership is to develop a network-as-a-service for HGC's global customer base using its existing infrastructure including access to all its nodes and data centers. PT&T Corp meanwhile owns 18,000km of optic fiber and although the financial impact from today's deal is still to be determined, Netlinkz says certain industries in the Philippines such as the marine sector will benefit the most. By leveraging Netlinkz' reliable and high-speed connectivity, marine industry enterprises in the country will be able to optimize operations, improve crew welfare, and enhance decision-making capabilities. Netlinkz CEO James Tsiolis, said the PT&T Corp deal was further evidence that Netlinkz had the product and service offerings capable of delivering connectivity and digital transformation enhancements that could benefit multiple users of telecommunication services. “The continued growth now occurring in our stable of tier-1 clients is opening the door to a steady rise in Netlinkz's revenue base," Tsiolis said. Importantly, Tsiolis said the PT&T partnership was not just about having the right product mix. “The realization of this agreement can also be attributed to the skillset of our sales and marketing team," he said. “Thanks to their efforts we continue to convert opportunities in our sales pipeline. “This at a time when our addressable markets both in Australia and overseas are experiencing ongoing growth."

Starlink Arrives in Mozambique

The SpaceX satellite broadband service Starlink has been launched in Mozambique. The kit costs MZN40,492 (USD628) with a monthly subscription priced at MZN3,000, according to a report from My Broadband. Starlink notes that Mozambique does not yet have a ground station for internet fallback and is currently relying solely on inter-satellite links, which could result in periods of intermittent service and high latency. Starlink confirmed that it had been awarded an operating license in Mozambique in May 2022. Other Southern African countries due to see a Starlink launch include Botswana (Q3 2023) and Eswatini, Namibia and Zimbabwe (Q4 2023).

Star Network Cancels Launch After Regulatory Intervention

Trinidadian newcomer Star Network (Blue Mobile Network) was forced to cancel its launch event on 9 June after the Telecommunications Authority of Trinidad and Tobago (TATT) warned the public that the company has not actually been granted a concession to operate a mobile network. As per local press reports, the enigmatic start-up lured hundreds of would-be subscribers to Invaders Bay Tower in Mucurapo, Port of Spain with the false promise of TTD1 (USD0.14) smartphones and laptops, only for the launch event to be scrapped at the last minute. The watchdog informed the media: 'There is no new mobile network in the country. [A] potential operator wishing to operate a public telecommunications network, must apply for, be approved, and be granted a concession to operate a network. No application has been made nor a concession granted to any potential 'new' operator that was scheduled to launch.'

Starlink Secures License to Operate in Zambia

Starlink has secured a license to provide services in Zambia after conducting successful pilot projects in locations across the country, the Ministry of Technology and Science (MOTS) has announced. Previously, in March 2023 Felix Mutati, Zambia's Minister of Science and Technology, had revealed that Starlink connectivity had proved to be effective in nine Zambian provinces during testing, and said at the time that the next step was to finalize the company's operating license. With that concession having now been awarded, Percy Chinyama, National Coordinator at SMART Zambia Institute – a division under the Office of the President – was cited as saying that Starlink's Low Earth Orbit (LEO) satellite services are expected to extend broadband connectivity to disadvantaged users in remote parts of the country.

Viasat, Inmarsat Deal Clears Final Hurdle

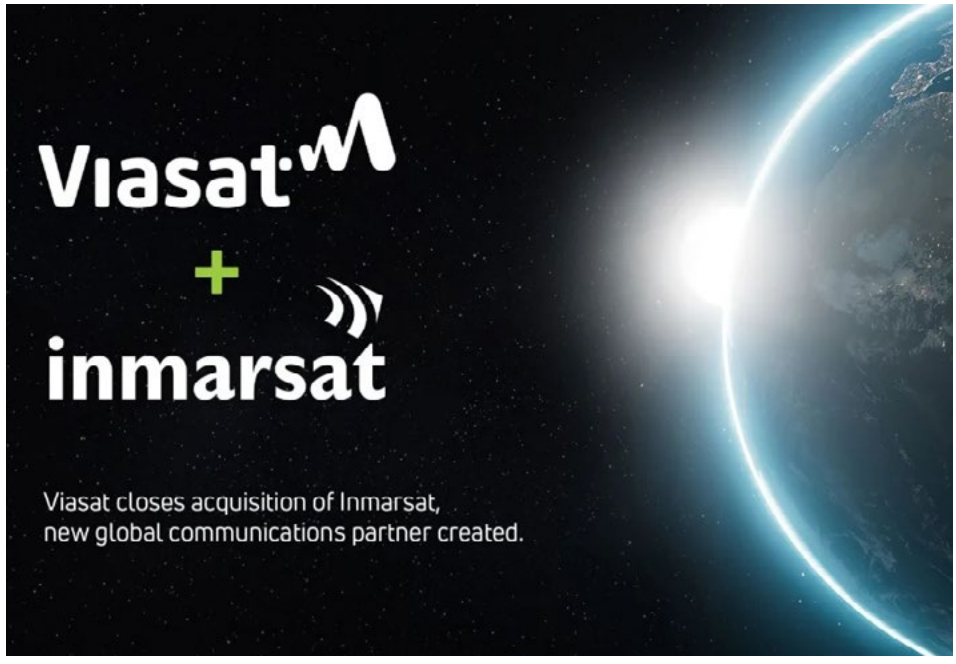
The European Commission (EC) unconditionally approved a $7.3 billion acquisition of satellite operator Inmarsat by US rival Viasat, paving the way for the deal to close by the end of the month. In a statement, the EC explained it had no competition concerns regarding the acquisition, following an in-depth probe commenced in February. Competition Commissioner Margrethe Vestager noted the investigation found the deal would not negatively impact the competitive landscape for in-flight broadband connectivity services on commercial airlines in the European Economic Area. The EC noted "a number of sizeable competitors would likely exert sufficient competitive pressure on the merged entity" and its "market position would remain moderate". EC clearance was the final hurdle to the acquisition: the US Federal Communications Commission gave its approval last week and UK authorities earlier this month.

Tanzania Announces Plan to Build Its Satellite

In the last twelve months, several African countries, including Kenya, Zimbabwe, Egypt, Uganda, and Angola have launched satellites into space. Other countries such as Côte d'Ivoire and Tanzania are finalizing plans for the launch. Tanzania plans to build its satellite, local media outlet The Citizen reported, quoting President Samia Suluhu Hassan. Details such as the type of satellite or the engineering team were not disclosed. However, negotiations to realize this ambition are already underway, we learn. The announcement comes at a time when African governments are showing increasing interest in space programs and increasing investment in the sector. According to the 2022 edition of Space In Africa's annual space industry report, the value of the industry is expected to reach $22.64 billion in 2026, up from $19.49 billion in 2021. The same report indicates that African nations allocated a total of $534.9 million to space programs in 2022 compared to $523.2 million in 2021. In April 2023, the Ivorian government indicated its first satellite would be launched by August 2024. A few days earlier, Kenya launched its first satellite, Taifa-1. In the past 12 months, Zimbabwe, Uganda, Egypt, and Angola have also launched satellites. In addition, Russia is negotiating with some African countries like Algeria, Nigeria, and South Africa to help them build and launch satellites into space. This surge in space investment in Africa comes in the context of accelerated digital transformation. Space technology could be used to improve the coverage of telecom and broadband Internet services, especially in rural or remote areas that are hardly accessible to mobile operators. Satellites can also be used for Earth observation to improve the performance of several sectors such as agriculture, fisheries, meteorology, natural resource management, security... According to the latest figures from the Tanzania Communications Regulatory Authority (TCRA), the country has 61.9 million cell phone subscribers and 33.1 million Internet users.

Viasat Closes Inmarsat Acquisition

Carlsbad-based satellite communications giant Viasat announced the completion of its acquisition of British firm Inmarsat on 31 May. Mark Dankberg, chairman and CEO of Viasat, commented: 'The combination of our companies brings together the people, technology, innovation, network assets, spectrum resources and global partnerships needed to help connect the world more affordably, securely and reliably. Together, we believe we are positioned to offer customers a multi-layered network that gives them the right connectivity at the right time, place and price.' Under the terms of the purchase agreement, at the closing of the transaction, Inmarsat's shareholders received an aggregate of USD551 million in cash, subject to adjustments, and approximately 46.36 million shares of common stock. The cash portion of the purchase price was reduced from USD850 million after Inmarsat paid a USD299 million special dividend to its shareholders in April 2022. The shares issued to the Inmarsat shareholders at the closing represented an aggregate of approximately 37.6% of the total shares of Viasat common stock on a fully diluted basis, with no Inmarsat shareholder receiving shares representing 10% or more. The 46.36 million shares of Viasat common stock were originally valued at USD3.1 billion based on the closing price on Friday 5 November 2021 (i.e. when the deal was agreed). The deal also involved the assumption of USD3.4 billion of net debt, for an overall valuation of USD7.3 billion.



Thuraya, eSAT Global Announce Satellite IoT Breakthrough

Thuraya and eSAT Global have successfully completed an over-the-air demonstration of low-latency, direct-to-satellite IoT texting system by transmitting low-power IoT messages over Thuraya's satellite network (Thuraya-2 Satellite T2). This is a pivotal breakthrough in the on-going efforts to create a favorable framework for the next-generation Internet of Things (IoT) connectivity. This milestone is the first of several milestones that Yahsat expects to achieve via its investment in eSAT Global and Thuraya's agreement with the company to develop a next-generation IoT platform. eSAT was able to send and receive messages of lengths of up to 320 characters over the T2 satellite with less transmission power (< 200 microwatts) than that used by a typical car key fob. This means that only minimal power is needed to transmit long-distance messages. The demo showed stable operations for a range of configurations, including those with a fingernail-sized antenna. Other technologies, such as Narrowband-IoT (NB-IoT), consume more satellite transmit power and bandwidth for the provision of similar texting and messaging services. The reduced level of power and bandwidth consumption allow GEO-MSS satellite operators to regulate cost per message, generating significant savings for their customers, in comparison to other satellite-based messaging technologies. A further benefit of this approach is that very significant numbers of endpoint terminals can be simultaneously serviced under Thuraya's coverage. The successful demo provides strong impetus to Thuraya's and eSAT's efforts to effectively utilize the resources of existing GEO-MSS satellites and thus unlocks a new avenue of revenue opportunities for satellite operators in the IoT and texting markets. Yahsat's Group Chief Executive Officer, Ali Al Hashemi, said: "This demonstration by Thuraya and eSAT Global underscores our mutual commitment to advance the fast-growing IoT sector. It is also a strong testament of the growing synergy between the business activities of leading satellite operators, with Yahsat and its mobility arm Thuraya at the forefront, and IoT solution providers. Having only just invested in eSAT Global in October 2022, we are pleased by the pace of this development. The new capabilities that are being implemented in our existing M2M/IoT ecosystem will enable us to offer even more compelling IoT solutions to Thuraya's customers." eSAT Global CEO Rick Somerton said: "Achievement of this milestone is a critical step towards mass market commercial service initiation later this year. Customers are excited by the news, and we are receiving enormous interest in this new capability well in advance of the launch. Our prospective sales pipeline is already greater than one hundred million dollars. Within two years of commencement of operations we expect to double the number of IoT devices currently connected to satellites around the world."

Trinidad Issues Starlink a Ten-Year Concession

The Telecommunications Authority of Trinidad and Tobago (TATT) has confirmed that it has issued a license to Starlink, the Low Earth Orbit (LEO) satellite broadband provider backed by Elon Musk's SpaceX venture. As per the regulator's paperwork, Port of Spain-based Starlink Internet Services Trinidad and Tobago received a 'Type 2 Concession for the Provision of a Public Domestic Fixed (via satellite) Telecommunications Network and Public Domestic Fixed Telecommunications Services on a National Geographic Scale' on 17 May. The license is valid for ten years. According to Starlink's coverage map, satellite connectivity is scheduled to go live in Trinidad and Tobago from 2Q23, suggesting a commercial launch will take place later this month. SpaceX currently has around 4,000 satellites in orbit, with plans to launch 42,000 in total. To date, more than 50 countries are known to have authorized Starlink to offer fixed broadband connectivity.

Côte d'Ivoire to Launch Its First Satellite in Space by August 2024

The African space sector is growing. In the last twelve months, Kenya, Zimbabwe, Uganda, Angola, and Egypt have launched satellites into space. The Ivory Coast government is working with Universal Konstructors Associated (UKA) and a polytechnic institute to launch its first satellite, the Yam-Sat CI 01. The small observation satellite should be in space by August 2024, Adama Diawara, Ivoirian minister of scientific research recently announced. "With our own satellite, we will be able to better observe the advance of terrorists, map the extent of deforestation, detect illegal gold panning, or even facilitate access to drinking water," said Boubacar Fofana (photo, left), president of UKA. This project shows the government's wish to grow its space industry and be self-reliant in space technology. President Ouattara started a feasibility study for a satellite project in 2015 and two years ago, Diawara shared plans for a space agency. By launching its satellite, Côte d'Ivoire falls into the steps of some other African nations. Last year, Kenya launched its first satellite, Taifa-1, with SpaceX's help. Zimbabwe, Uganda, Egypt, and Angola also launched satellites. And at the moment, Russia is in talks with Algeria, Nigeria, and South Africa to help them build and launch their satellites. Africa's space industry is expected to grow from $19.49 billion in 2021 to $22.64 billion in 2026, in value, according to the 2022 Space in Africa report. Regarding funding, the document notes that funding for space programs in the region went up from $523.2 million in 2021 to $534.9 million in 2022.

BITS Pilani Dubai Campus Launches 5 Pico Satellites

BITS Pilani Dubai Campus (BPDC), one of the UAE's leading technology and engineering universities has recently launched and tested 5 Pico Satellites using Drone Satellite Launch Vehicle (DSLV) at Sanad Academy, Dubai. The launch was done in the presence of the Chief Guest, Dr. Eesa Al Bastaki, President, University of Dubai, Dr. Srinivasan Madapusi, Director, BPDC, Faculty members and Students of BPDC. Students were thrilled as the Pico Satellites started transmitting real time data of temperature, humidity, pressure, air quality, UV intensity, and orientation. The data was projected on a large smart board for the visitors, giving them the ambience of a mission control center. This effort undertaken by BPDC in collaboration with UAE-based Edutech4Space, a pioneer in the field of space technology education, and under the mentorship of the Moon Man of India Dr. Mylswamy Annadurai marks a significant first step towards the Project MAHASAT. A team of 30 undergraduate students from BPDC studying diverse streams such as Electronics Engineering, Mechanical Engineering, Computer Science, Biotechnology etc. came together and worked tirelessly to launch the Pico Satellites within 6 weeks after the commencement of Project MAHASAT. Dr. Madapusi said: "Pico Satellites are the future of space exploration, and they're already making waves in the world's classrooms. While their low cost and relatively quick turnaround time makes them invaluable from an education perspective, they also have the power to engage students in a project from its initial paper design to building and testing to launch. "Further, this is an excellent training ground for developing interdisciplinary skills and systems level thinking that are critical for the future. Through this hands-on experience in development, management, and mission training, BPDC is giving next-generation scientists a chance to learn valuable skills that will forge UAE's plans to become regional hub for commercial space activities and advanced research and development." Dr. Annadurai, who is overseeing and guiding BPDC students, said: "With the emergence of advancements in space technology, availability of trained manpower is going to be crucial. A very concrete academic plan has been devised wherein students of BPDC will be trained to make significant contributions in the field of Space technology of UAE and India. The university will also have its own Ground Station in near future which will enable students to communicate with their satellites, collect data, analyze it, and create predictions on weather, pollution levels, disaster management etc." Shrisudha Viswanathan, Founder & CEO of Edutech4Space, said: "We had an intensive training with upcoming engineers & future scientists of BPDC from the time we started the project MAHASAT. Using Drone Satellite Launch Vehicle (DSLV) to carry the 5 Pico Satellites to an altitude of 100 meters is a unique attempt in GCC. With this success we are now geared to move for Phase 2 which is ground station installation at BPDC before we finally build the Engineering model and flight model of cubesat."

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ARTICLE

5G and IoT Use Cases are to Disrupt Wholesale Roaming Billing

Compelling events for a transition away from 30-year-old billing standards and processes

Elke Reis
Senior Emerging Product Specialist
Syniverse

Today's next generations of technologies are revolutionizing not just the mobile industry itself, but also how the mobile industry enables others to grow as well, at an equally rapid pace. Wholesale billing and settlement is clearly no exception. The explosion in use cases and business models dictates the need for evolution in wholesale roaming monetization. Designed with the future in mind, GSMA's new Billing & Charging Evolution standard (BCE) introduces a new level of flexibility to wholesale charging and settlement models. BCE also enables usage to be reconciled, leading to more accuracy in invoicing, reduction in billing disputes and hence faster settlement.

> *BCE will eventually replace TAP as the industry's standard for wholesale roaming billing and charging and by embracing the BCE standard, operators position themselves to leverage the full potential of IoT, 5G standalone, and the revenue-generating services they provide.*

The GSMA's BCE standard is a more flexible model capable of efficiently supporting the large amounts of billing and charging activities that 5G and IoT introduce into the mobile ecosystem.

Prior to GSMA's development of BCE, clearing and settlement with Transferred Account Procedure (TAP) had proved itself as a successful standard, specifically for wholesale and retail billing of roaming, largely thanks to its widespread adoption. For years, TAP—Transferred Account Procedures—had been the only standard for wholesale roaming and billing settlement. TAP was originally designed to support Voice and SMS and was well-suited for handling simple billing scenarios for mobile data usage. However, with the emergence of 5G standalone and IoT, combined with the increased importance of mobile data and usage of online charging methods, the TAP standard no longer accommodates the emerging billing requirements and evolving use cases, leading

to operational overhead in wholesale and finance departments from manual and fault sensitive processes.

At Syniverse, we know changes to industry standards can be disruptive to daily operations at MNOs, but the good news is that the gain will eventually be bigger than the pain. The BCE standard is a significant development, and its adoption by MNOs will help improve interoperability, transparency, and innovation. While the process of becoming compliant with the BCE standard may be challenging for some, its implementation is essential to unlock growth from new services, remain competitive and monetize adequately.

Addressing the arrival of emerging networks such as 5G and IoT, along with their use cases and new business models, Syniverse has leveraged its heritage and expertise in clearing and settlement to ensure any Mobile Network Operator (MNO) can implement the commercial models that drive profitable growth.

BCE will eventually replace TAP as the industry's standard for wholesale roaming billing and charging and by embracing the BCE standard, operators position themselves to leverage the full potential of IoT, 5G standalone, and the revenue-generating services they provide.

With Universal Commerce for BCE Syniverse helps operators redefine their wholesale roaming approach in terms of how they invoice partners, clear and settle data, and facilitate financial transactions more efficiently and without friction. To that end, we're assisting MNO's and businesses in their paths to digitalize their current manual or labor-intensive processes by offering automation, security, immutability in the workflow through a new, future proof, modular solution.

A few questions Mobile Network Operators should ask themselves to determine the urgency of their wholesale billing transition:

1. Are you offering IoT solutions in your home market and/or abroad?
2. Will you be shutting down legacy 2G and 3G networks and start offering VoLTE and 5G roaming services?
3. Do you struggle to automate the commercial wholesale models needed to support your enterprise and wholesale business commercial needs?

A single "Yes" answer to any of these three questions is a good indicator that a wholesale billing transformation is inevitable.

At Syniverse, we know changes to industry standards can be disruptive to daily operations at MNOs, but the good news is that the gain will eventually be bigger than the pain. The BCE standard is a significant development, and its adoption by MNOs will help improve interoperability, transparency, and innovation. While the process of becoming compliant with the BCE standard may be challenging for some, its implementation is essential to unlock growth from new services, remain competitive and monetize adequately.

Understanding new formats and processes can be overwhelming. That's why we provide dedicated BCE solution design sessions to help MNO's get a clear view on implementing BCE.

Reach out to Syniverse and request an assessment and we'll help you shape a solution that best fits your preferences and capabilities. Your readiness to adopt BCE is vital to the future of your roaming business and readiness is made easy with Syniverse.

About the author

Elke Reis (Senior Emerging Product Specialist)

Elke Reis is a senior emerging product specialist at Syniverse, the global leader of telecommunication and information technology solutions. She has over 18 years of experience in leading innovative clearing and settlement solutions in the wholesale roaming industry, with vast expertise in customer success and product portfolios comprising wholesale financial clearing and settlement software solutions. She currently serves as senior emerging product specialist in Syniverse's new business development group, where she focuses on the company's emerging product areas, such as Carrier Messaging Hub, Universal Commerce, and IoT Clearing and Settlement. She is based in Luxembourg and has a passion for leading customer solutions. In her free time, she enjoys the outdoors and fine arts

WHOLESALE NEWS

Zain, Omantel Combine for Wholesale Play

Operator group Zain and Omantel formed a joint venture targeting providing regional providers, international carriers, global hyperscalers and various other players with wholesale services in the Middle East. The Zain Omantel International (VOI) venture will combine relevant assets of both companies and aims to be the leading sector player in its region. Between them, Zain and Omantel have operations in eight markets in MEA, which will have their wholesale requirements met by the new entity. The pair noted bringing the two operations together will reduce costs and increase their competitiveness. VOI will be led by current Omantel VP wholesale Sohail Qadir. It plans to target a variety of global connectivity and infrastructure providers with its services. Alongside managing existing assets, the VOI will aid in development of various new subsea and terrestrial systems. Zain CEO Bader Al-Kharafi noted the new entity is "positioned to evolve into a significant international player on the wholesale telecommunications scene that will benefit both Zain and Omantel on financial, commercial and operational levels". Qadir added VOI will deliver "differentiated services to regional and international customers alike, and providing increased value and enhanced customer-experience to all associated stakeholders across our extensive operational footprint".

ACCC Begins Consulting on Wholesale Regulation

The Australian Competition and Consumer Commission (ACCC) has instigated a combined public inquiry into whether nine wholesale telecommunications services should continue to be regulated. With existing declarations for the nine market segments in question set to expire in June 2024, the regulator has published a discussion paper and is seeking submission from interested parties by a deadline of 12 July 2023. The nine declared services which are the subject of this inquiry are: domestic transmission capacity service; unconditioned local loop service; line sharing service; wholesale line rental (WLR); local carriage service; fixed originating access service; fixed terminating access service; wholesale ADSL; and domestic mobile terminating access service. Broadly speaking, these services: enable access to fixed line incumbent Telstra's legacy access network, interconnection of networks for the purpose of voice calls, the resale of analogue fixed line phone services, data transmission, and ADSL resale. Notably, the service being examined as part of the inquiry do not include services that are regulated under NBN Co's Special Access Undertaking or 'Superfast Broadband Access Services' on high speed networks other than the National Broadband Network (NBN). Commenting on the matter, ACCC Commissioner Anna Brakey said: 'Our inquiry will consider whether ongoing regulation of these declared services promotes the long-term interests of Australians. We want to know if recent developments including investments in optical fiber, the completion of the NBN and declining usage of Telstra's copper network mean that competition is protecting customers and what that means about whether or how we should regulate these services.'

Regulator Approves Mila Wholesale Tariff

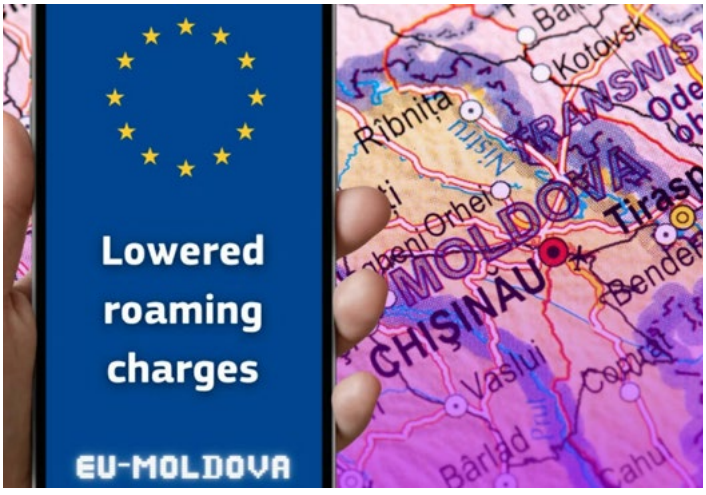
The Electronic Communications Office of Iceland (ECOI) has approved the cost analysis of Icelandic wholesale operator Mila as the basis for the wholesale tariff for access to copper cables and connection infrastructure. The fee for access to copper home lines will be ISK1,978 (USD14.52) per month without VAT and ISK1,553 without VAT per month for every 100 lines of connector headers in a connector rack. This is a 27% increase on the current tariff for monthly fees, which came into effect on 1 June 2019. The increase is partly because set-up fees are being abolished. The new tariff comes into effect from 1 June.

Quartet Launch 5G Inter-Network Roaming Service Trial

China's four main telcos – China Mobile, China Telecom, China Unicom and China Broadnet – have jointly announced the launch of what they describe as the worlds first 5G inter-network roaming service, China Daily reports. The trial service was launched in Xinjiang Uygur Autonomous Region (XUAR) and will allow customers to use the 5G networks of other operators when outside the coverage area of their service provider. The Ministry of Industry and Information Technology (MIIT) stated that it would continue to 'actively and steadily' promote the 5G inter-network roaming, with a view to expanding access to 5G services rapidly whilst limiting costs.

EU, Moldova Operators to Cut Roaming Charges

Moldova became the latest nation to more closely align with European Union (EU) roaming rules, as the European Commission (EC) revealed operators from the country and member states agreed to reduce rates for users. The roaming price cut will take effect at the start of January 2024, with a retail price cap to be announced in October, the EC announced. It revealed Deutsche Telekom, Orange and Telefonica were among the first signatories of the voluntary declaration, while Moldovan operators backing the agreement include Orange's Moldova unit, Moldtelecom and Moldcell. Commitments outlined in the document cover "affordable retail roaming offers" on calls, data and texts, assessment of a wholesale roaming cap and a renegotiation of it "where required". Operators will also ensure reduced roaming offers cover a wide range of end-users travelling between the two areas. The EC noted the move aligns with a shared ambition for a "long-term roaming agreement" between the two regions, and to involve Moldova in the bloc's existing data roaming rules. It added the declaration complements Moldova's decision to implement the EU-wide voice calls termination rate, which will commence on the same date as the roaming deal.



National Roaming to Be Launched Senegal

Senegal plans to launch national mobile roaming later this month and allocate 5G licenses before the end of July, the head of the Regulation Authority for Telecommunications and Posts (L'Autorite de Regulation des Telecommunications et des Postes, ARTP) has announced. Setting out the watchdog's top priorities for 2023 at a press event last Friday, ARTP director general Abdou Karim Sall revealed the implementation of national roaming between the country's mobile network operators (MNOs) – Orange, Free and Expresso Telecom – is scheduled for 17 May. The project is one of a number of steps being undertaken in response to demands from President Macky Sall to achieve nationwide mobile network coverage 'as soon as possible'. With regards to the introduction of 5G, meanwhile, the ARTP's director general said he expects the license allocation process will be completed before the end of July, with this taking the form of an extension to the operators' 4G concessions. A provisional date of 31 May 2023 has been set for the launch of a competitive tender. Notwithstanding the roaming arrangements, Mr. Sall noted the regulator will also be conducting an audit to ensure the MNOs have achieved the coverage and quality of service obligations set out in their operating concessions. The cellcos have until 31 December to comply with these commitments. In addition to the obligations contained in the license specifications, in April the MNOs agreed to undertake additional network investment in return for reduced penalties following an earlier QoS review.

Malta Redefines Universal Service Obligations, Opens Wholesale Market Consultation

The Malta Communications Authority (MCA) has issued a decision to update universal service obligations (USOs) to bring them in line with the European Electronic Communications Code (EECC). The regulator has redefined five aspects of the USO, namely: provision of voice communications services at a fixed location; provision of reduced tariff options; provision of other specific measures for vulnerable users; control of expenditure by users; and comprehensive electronic directory. The changes will take effect from 1 August. Separately, the MCA has opened a consultation to examine the regulation of the wholesale fixed broadband market to encourage further competition in a market dominated by two players, Melita and GO.

Malaysia to Sell Off 5G Wholesale Company

The Malaysian government will sell its wholesale 5G network company Digital Nasional Berhad (DNB) once it reaches 80% coverage, as the new administration continues to dismantle the previous government's efforts of a single 5G network. Speaking to Bernama TV, Malaysian Communications and Multimedia Commission chief operating officer Mohammed Ali Hanafiah Mohd Yunus, revealed another entity will take over DNB once it reaches 80% coverage in populated locations and make it a fully private company, Malay Mail reported. The previous government launched DNB in 2021, an unprecedented and controversial move to have a singular 5G network that operators equally shared 65% equity, with the rest held by the government. It argued this would streamline the deployment of infrastructure, keeps costs low and accelerates coverage. However, as Malaysia wrangled with operators on how to conduct its 5G strategy, south-east Asian neighbors have advanced further. Last week, the government announced it will build a second 5G network and abolish the one 5G network policy that was in place. Prior to the announcement, the US and European nations singled out Huawei in their warning to the Malaysian government if it went ahead with its second network. Chinese vendors Huawei and ZTE have long been accused of potentially providing security backdoor to national infrastructures through their equipment, accusations they have long denied. As part of Malaysia's previous single network plan, Ericsson was the exclusive vendor partner, but critics have argued marrying itself to one partner would prove expensive and will pass the cost down to subscribers.

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ARTICLE

A Balanced Approach to Monetizing Innovations

Communications service providers (CSPs) play a critical role in the digital economy as they adopt new technologies and make them available to a wide audience. They heavily invest in infrastructure by deploying 5G networks and launching satellite communications and fixed wireless access (FWA). Accordingly, they provide next-level communications for people across the world and give new digital opportunities. For example, STC has invested $1 billion in MENA HUB, a project designed to improve regional connectivity and infrastructure to support Saudi Arabia's rapidly expanding digital and cloud sector. It gave the locals access to fast, reliable connections and diverse digital services for social and economic well-being.

Under these conditions, CSPs should develop an efficient strategy for monetizing investments and benefiting from the implemented technologies. It involves achieving a balance between flexibility and openness to the realization of new ideas and business efficiency.

> *5G helps move away from the "one network fits all" idea and maximize the personalization and differentiation of network services based on each subscriber's unique needs. It also allows CSPs to use any technical network's parameter to monetize the service.*

Flexibility Arises at the Network Level

5G accelerates the development of innovative offerings and consumption of digital services. According to GSMA Intelligence, 5G users are more interested in adding digital services and entertainment content to their mobile contracts compared to 4G users (50% for 5G users across the nine categories of add-ons compared to 38% for 4G users). At the same time, Analysys Mason's research states that 5G connections will increase from 2 billion in 2023 to nearly 4 billion in 2026. Similarly, 5G revenue is expected to grow from approximately $400 billion worldwide in 2023 to almost $700 billion by 2026. At this point, it will represent 70% of all wireless revenue.

Sergey Karpov
Chief Commercial Officer
Nexign

nexign

5G gives CSPs almost endless opportunities to launch new services, and providers should become more flexible in improving their subscribers' loyalty through personalization. In particular, CSPs can manage the quality of services provided to a subscriber at the network segment level. In this case, several network slices can be simultaneously connected for different services on a subscriber's device. For instance, a CSP can provide an ultra-low latency dedicated slice for monitoring the operation of equipment in production, a dedicated slice with a guaranteed increased speed for online broadcasting of a football match and free traffic sponsored by an advertiser, and a regular connection for the rest of the traffic.

> *One of the promising areas developing side-by-side with 5G is the internet of things (IoT). IoT has great potential for CSPs, as it helps them play diverse roles in the value chain. As such, they can act as IoT connectivity providers, service enablers, and end-to-end service providers.*

Besides, 5G technologies open even more opportunities in the B2B segment. 5G-based projects help digitalize airports, seaports, coal mines, and other businesses. For instance, China is introducing automated technology to enhance the efficiency and safety of its coal mining industry by implementing 5G technology to replace part of underground workers with machines. This approach helps decrease mining costs and the death rate among miners. In general, 5G helps move away from the "one network fits all" idea and maximize the personalization and differentiation of network services based on each subscriber's unique needs. It also allows CSPs to use any technical network's parameter to monetize the service.

Similarly, it is important to mention the possibility of realizing 5G ideas in 4G networks. Nexign offers products for 4G and 5G NSA networks to help CSPs prioritize traffic for different applications, analyze network congestion, and monitor QoS for partner traffic. For instance, Nexign PCRF helps prioritize traffic for a specific device or application, thus implementing the 5G idea of network slicing. Also, Nexign RCAF fulfills the functions of 5G network analytics and provides a detailed analysis of network overload.

Launching New Lines of Business: Focus on Efficiency

In the digital, everything happens quickly, as ideas are quickly born, tested, and implemented. Despite participating in this rate race on an equal footing with digital-born companies, CSPs should think about the most efficient and cost-effective way to launch new business lines and services while also escaping chaos in business processes and internal systems.

One of the promising areas developing side-by-side with 5G is the internet of things (IoT). IoT has great potential for CSPs, as it helps them play diverse roles in the value chain. As such, they can act as IoT connectivity providers, service enablers, and end-to-end service providers. For example, CSPs are vital for the rapidly expanding IoT ecosystem in MENA, where IoT applications are often focused on smart city solutions and aim to improve the quality of urban living and the environmental impact of cities.

IoT business should always be based on a platform that lets CSPs effectively manage subscribers and products and maximize monetization opportunities. On the one hand, the IoT business is complex and includes devices, customers, partners, etc. On the other hand, its profitability remains low. Therefore, CSPs should build a single system that increases the flexibility of IoT management while remaining cost-efficient.

Open Collaboration

In the digital, monetizing innovations is impossible without value co-creation with partners. Collaboration can have various formats, including creating bundles, providing network capabilities to third-party companies and developers, and organizing marketplaces. For example, CSPs can partner with vendors, such as cloud service and IT platform providers, digital service providers, media and gaming providers, and device manufacturers. Indeed, CSPs can succeed only by establishing numerous partnerships and considering different partnership models, including multiple settlement models, such as revenue sharing, one-time fees, tiered plans for customers, etc. Therefore, it is not surprising that according to TM Forum, CSPs prioritize solutions for efficient monetization and partner management. They help improve business efficacy by automating each step of working with partners.

Along with BSS, infrastructure solutions can also simplify and speed up partner onboarding. For example, Nexign Microservices Framework helps drive partner ecosystem growth and create new digital services for customers and subscribers while significantly reducing time to market.

Conclusion

Regardless of whether a CSP decides to be a provider of comprehensive connectivity services based on 5G, a leading IoT enabler in a certain vertical, or a digital ecosystem provider, we give them reliable software to monetize any line of business and any generation of mobile networks. We are also ready to support our clients on their path of business transformation, as we have extensive experience in implementing large-scale projects for Tier-1 CSPs.

Nexign's network core solutions ensure the seamless operation of network functions for all generations of communications (3G-5G SA). We help CSPs support and monetize new generations of mobile networks while also developing current LTE services. For example, Nexign Revenue Management lifts barriers for telcos' efficient business growth, ensuring operational flexibility not limited by vendor or technology, and gives CSPs opportunities for unlimited revenue growth. Besides, Nexign's 5G products let CSPs support charging, policy management, and signaling traffic routing for 5G SA networks, and Nexign IoT Connectivity Platform helps automate core business processes in the IoT and machine-to-machine (M2M) market.

TECHNOLOGY NEWS

DT and Ericsson Present First Network Slicing Solution

Deutsche Telekom (DT) and Ericsson have announced a 'world's first implementation' of a uniquely integrated solution to customize and manage end-to-end network slices for enterprise cloud-based applications. In a Proof of Concept (PoC), the partners successfully instantiated a secure network slice that automatically connects to private cloud services. The Swedish vendor said the solution addresses an enterprise's need to ensure employees get the network performance required for a smooth and secure operation of their cloud-based workplace applications. Designed for enterprise usability, it provides for automated configuration, provisioning and end-to-end orchestration of the enterprise slicing service order. And it is enabled without the need for any additional configuration by the user on their enterprise devices. 'This successful demonstration highlights the potential of advanced 5G network slicing capabilities to enable unique and flexible services for enterprises, customized to specific needs,' stated Kaniz Mahdi, SVP of Technology Architecture and Innovation at DT, adding: 'Working with our partners, we are committed to transferring this innovation into compelling solutions for our enterprise customers' digitalization journeys.' The PoC was implemented on a 5G Standalone (SA) testbed in a DT lab with the enterprise smart phones connecting to a predefined set of private

cloud applications. Ericsson provided the 5G Core network, Radio Access Network (RAN) and end-to-end orchestration.

Citymesh, Digi to Deploy Dense Air Small Cells Platform

To support the commercial launch in 2024 of Citymesh Mobile, the country's fourth mobile network operator (MNO), Belgian operator Citymesh and its joint venture partner Digi Communications have announced plans to accelerate and strengthen their 5G small cell strategy in collaboration with Dense Air Networks. The partners will enhance their network through the deployment of Dense Air's RAN-as-a-service small cells and proprietary neutral host platform, enabling them to provide better coverage, higher speeds and greater capacity at a reduced cost. The deal builds on the acquisition of Dense Air's Belgian subsidiary, Dense Air Belgium, earlier this year which added 45MHz of 4G/5G frequencies in the 2.6GHz band to Citymesh Mobile's spectrum portfolio. Commenting on the deal, Citymesh CTO Robin Leblon said: 'Dense Air's solution will play an important part in the rollout of our high-speed, high-capacity nationwide 5G network. Targeted 5G small cell deployments are a highly effective way to tackle connectivity challenges, particularly in areas where deploying a large macro cell site isn't an option.' Paul Senior, founder and chairman of Dense Air, added: 'Citymesh/Digi are becoming powerful new 5G mobile operators. We are excited to support their ambitious 5G network densification in Belgium, utilizing our unique RAN-as-a-Service solution, cellShare neutral host platform, and big data analytics.' Citymesh Mobile secured the spectrum package reserved for a fourth MNO in June 2022's 5G auction and went on to acquire frequencies in the 900MHz, 1800MHz, 2100MHz, 700MHz and 3600MHz bands, paying a total of EUR114.3 million (USD125.4 million). The company plans to deploy a nationwide 5G mobile network and launch a mobile offering for both residential land business users. Whilst the first masts and antennas will be installed in the coming months, the major deployment programme is scheduled for 2024.

Webex by Cisco Delivers First App for Hybrid Work to Audi Vehicles

Cisco and Audi unveiled plans to enhance mobile car collaboration experiences for hybrid workers. In partnership with Volkswagen Group's software company CARIAD and Samsung subsidiary HARMAN, Webex will be the first app for hybrid work available in select Audi models as of the 2024 model year. As hybrid work continues to evolve, the modern work environment is no longer confined to a single space or device. People increasingly demand flexible, frictionless ways to get work done on their own terms, requiring innovative solutions that empower this. To meet consumer demand and provide a safe, secure and easy-to-use secure mobile collaboration experience, the Webex automotive application will be available through the in-vehicle Audi Application Store. The Application Store is developed by CARIAD and HARMAN and designed for select Audi vehicles with additional Volkswagen Group brands to follow at a later time. "We're on a mission to transform the connected car into another extension of the hybrid workplace," said Jeetu Patel, Executive Vice President and General Manager, Security & Collaboration, Cisco. "Our work with leading manufacturers like Audi will empower customers with a safe and seamless way to stay connected and be productive regardless of where or how you're working." This partnership aims to accommodate flexible hybrid work cultures. It presents people with access to elevated work experiences that can be personalized to fit their lifestyles and enable work from any setting. Customer benefits include:

- Simple Setup: Drivers can download the Webex App from the Application Store available on the Audi vehicle's infotainment system, with no phone needed for set up. The store consistently ensures that the applications in the vehicle meet the high safety requirements of the Volkswagen Group. With this simple setup, drivers can seamlessly transition from Webex meetings on their electronic devices to in-car meetings.
- Purpose-Built Safety Features: With features designed to prioritize safety, Webex goes into audio-only mode when the car is in transit to ensure that drivers can participate in meetings without taking their eyes off the road. When parked, drivers can take advantage of Webex's full immersive collaboration experience and are able to view meeting participants, shared content and closed captioning.
- AI-Enhanced Meetings: Drivers will have access to Webex's built-in AI features for best-in-class noise removal and voice optimization. This will ensure that drivers can be clearly heard, without disruptive background sounds such as roadway noise or construction.

Availability

As of July 2023, the Application Store, from which the Webex App can be downloaded, will be available in new Audi production models of the Audi A4, A5, Q5, A6, A7, A8, Q8 e-tron, and e-tron GT in Europe, USA, Canada, Mexico, and Overseas markets. Cisco works with over 32,000 transportation organizations in 169 countries worldwide and has 25,000 patents in the transportation space. This partnership with Audi, CARIAD, and HARMAN is part of Webex for Auto, which includes Webex Meetings for Apple CarPlay, and collaboration with automotive manufactures including Ford Motor Company and Mercedes-Benz. Cisco will continue to expand its growing ecosystem of innovative collaboration solutions that enable unrivaled experiences on the go.

Enea Confirms Development of Multi-Vendor 5G SA Core Solution in Telenor-Led Project

Swedish vendor Enea has announced the development of what it called an 'innovative end-to-end automated deployment solution with 5G Standalone (SA) Core', under a project led by Norway's Telenor which included the participation of 'ten world-class vendors'. According to Enea, the solution substantially accelerates the deployment time of a network slice from days to minutes, increasing the deployment speed by 70%. It added that the unique multi-vendor approach led by Telenor involved key network functions from Enea (Stratum Network Data Layer, Subscription Manager), as well as Oracle and Casa Systems. According to the vendor, the purpose of the solution is to both reduce deployment time and to allow enterprises to order 5G network services dynamically and have a proven path to on-board their own application services via standard APIs. The work on the project has been ongoing for the last two years, with Enea confirming its involvement back in May 2021.

Saudi Arabia to Benefit from New Satellite IoT Services Developed by iot squared and OQ Technology

iot squared, an Internet of things (IoT) technology company and a joint venture between Saudi Arabia's Public Investment Fund (PIF) and stc Group (stc), has signed a Memorandum of Understanding (MoU) with OQ Technology, the world's first global satellite telecom operator for IoT connectivity using 5G protocol. The MoU was signed by Othman Al Dahash, Chief Executive Officer of iot squared, and Omar Qaise, Founder and CEO of OQ Technology. Through this partnership, OQ Technology will provide satellite IoT connectivity services and products to iot squared and support the technical development of its products and services. The two partners will also collaborate to identify target markets, verticals and applications that require satellite IoT services in the Kingdom and provide them with the necessary solutions. Othman Al Dahash, CEO of iot squared, said: "By helping to solve various challenges from traffic management, energy, safety, waste, and many others, IoT will fundamentally allow us to enhance productivity levels and quality of life, revolutionizing the way we live and work. By providing coverage and connectivity anywhere in the country, the integration of satellite IoT services and solutions in the Kingdom will drive the adoption of IoT solutions. "Thanks to our latest partnership with OQ Technology, not only will we leverage the company's expertise and existing products to support IoT's technical development and products, but together we will drive the adoption of IoT services, helping to achieve national digital transformation objectives, and motivating research and development across Saudi Arabia." Omar Qaise, founder and CEO of OQ Technology, said: "5G networks are designed to address highly complex services, and applications such as the support of billions of interconnected devices known as massive machine communication. The problem is that only 25%

of the Earth's land mass today is covered by cell towers. At OQ Technology we are working to address this problem by enabling 5G-based massive machine communication all over the world using a constellation of nanosatellites which ensure a truly low latency of only a few milliseconds. "By partnering with iot squared, we will now be able to use our shared networks, resources and expertise to identify new target markets and applications that require satellite IoT services in Saudi Arabia and work together to identify solution requirements, while advancing the adoption of IoT solutions in support of the country's digital transformation objectives. "OQ Technology, supported by Aramco Wa'ed Ventures, has established a local presence in the Al Khobar region. Having started commercial services and converting its global customers pipeline into paying clients this year, the company has recently signed a large commercial contract in the oil and gas sector."

FCO Examines Potential Antitrust Impediment of 1&1 by Vodafone, Vantage Towers

Following a complaint filed by 1&1 Mobilfunk earlier this year, Germany's Federal Cartel Office (FCO, Bundeskartellamt) is examining whether Vodafone Germany its affiliated company Vantage Towers may have violated German and European competition law by impeding 1&1's options for co-using radio masts. With the aim of becoming Germany's fourth mobile network operator (MNO), 1&1 signed an agreement with Vantage Towers on the shared use of a large number of radio masts in spring of 2021, but the provision of the agreed locations was massively delayed during 2022 and continues to be affected. Vantage Towers is Vodafone Group's former radio mast division, which was listed as a stock company in March 2021. Vodafone initially remained the majority shareholder of Vantage Towers after flotation. Vantage Towers markets and manages Vodafone Group's outsourced portfolio of existing base station sites. The locations continue to be used by Vodafone as the main tenant, however Vantage Towers' business model in principle also involves renting out surfaces for antenna installations to other MNOs. As such, the FCO will examine whether Vantage Towers' and Vodafone's business practices on the 'supplier side' could be objectionable under German and European competition law standards. 'We welcome the intended market entry of 1&1 as a fourth mobile network operator in Germany from a competition perspective. It is clear that to develop its own mobile phone network a company has to make high investments and take entrepreneurial risks when taking such a step,' said Andreas Mundt, President of the FCO, adding: 'It is a key task of competition law to set fair rules of play for companies' business practices. Powerful and dominant companies must not unfairly impede other companies. We will therefore scrutinize whether there are sound reasons for a delay in the provision of antenna locations for 1&1.' Irrespective of the FCO's proceeding, the Federal Netowk Agency (FNA, Bundesnetzagentur) is currently examining whether 1&1 should be fined for failing to meet its obligation resulting from its purchase of frequencies at auction in 2019 to commission 1,000 5G base stations within the specified period.

REGULATORY NEWS

ITU makes $100B Funding Plea to Push Digital Inclusion

The International Telecommunication Union (ITU) set a target of raising $100 billion from the public and private sectors by 2026, cash set to be focused on connectivity projects in the world's least-developed countries. In a statement, the UN organization called for an increase in pledges made to the Partner2Connect Digital Coalition. The project has already secured $30 billion for its various projects and earmarked $12 billion of this to specific areas. The ITU estimates 2.7 billion people across the globe were offline in 2022, with almost a third of these located in the 46 countries it defines as "least developed". It noted across these nations the internet was considered affordable in just two of them. Reasons cited for this large offline population comprise issues with access, digital skills and affordability. ITU secretary-general Doreen Bogdan-Martin said technology "is at the top of the global agenda, but the benefits of digital technology are still out of reach for too many people". "If we are serious about digitalizing the world in a way that is meaningful and sustainable, we must take action to accelerate digital transformation for everyone." "As the internet becomes ever more central to value creation and innovation, least developed countries risk falling further behind," UN secretary-general Antonio Guterres added. "We must dramatically improve accessibility and inclusivity and eliminate the digital divide."

FCC Approves Windstream Request for Majority Foreign Interest

The Federal Communications Commission (FCC) has granted permission for Windstream Holdings II (Windstream) to accept a foreign ownership stake that exceeds the 25% cap typically applied to telecoms operators. The request relates to Windstream's 2020 emergence from Chapter 11 bankruptcy protection. Previously, in February 2019 Windstream filed voluntary petitions for reorganization under Chapter 11 of the US Bankruptcy Code. The US Bankruptcy Court for the Southern District of New York went on to confirm the telco's reorganization plan in June 2020, and Windstream successfully completed its financial restructuring process as a privately held company in September 2020. As per the FCC filing, when Step Two of the reorganization is complete, Windstream will have an aggregate indirect foreign equity interest of 66.29%, of which Nexus Aggregator will hold 49.27%. Elliott International, a Cayman Islands entity, will hold a 69.57% equity interest in Nexus Aggregator. Meanwhile, Pacific Investment Management Company (PIMCO), which is ultimately owned and controlled by Germany's Allianz SE, would exclusively control the voting in Windstream on behalf of a series of US and foreign funds that would collectively hold a 21.17% direct equity interest in Windstream upon closing. A number of other overseas companies will also hold minor stakes in the US telco. On 2 June the FCC concluded: 'Upon review of the Petition, as amended, and consideration of the record of this proceeding, we find that the public interest would not be served by prohibiting the foreign ownership of Windstream, the controlling US parent, in excess of the 25% benchmarks in section 310(b)(4) of the Act.'

MTNL Could Be Closed, With Assets Transferred to BSNL

The government of India is considering closing the struggling state-backed fixed and mobile operator Mahanagar Telephone Nigam Limited (MTNL) and transferring its operations to sister company Bharat Sanchar Nigam Limited (BSNL), abandoning plans to merge the two firms. A report from Livemint cites an anonymous government official as saying that MTNL's ongoing losses and mounting debts would weigh down the merged entity. A closure of MTNL would instead enable BSNL to take over MTNL's operations in Delhi and Mumbai without impacting its own financial health. The government recently approved a third 'revival package' worth INR890.47 billion (USD10.79 billion) for BSNL to support its 4G and 5G network rollouts.

EC Approves Telenet-Fluvius Fiber Joint Venture

European Commissioner (EC) Thierry Breton (pictured) bemoaned slow progress in slapping restrictions on vendors deemed high risk by national authorities in the region, highlighting those excluding ZTE and Huawei from 5G were justified and in-line with recommendations. In a speech made as the EC published a progress report on the implementation of guidance set-out more than three years ago in its toolbox on 5G cybersecurity, Breton complained only ten European Union countries had restricted or excluded high risk vendors. This is despite almost all having the ability to within national laws. He noted the "slow" progress being made "poses a major security risk and exposes the [European] Union's collective security". In an associated statement referred to by Breton, the EC confirmed nations imposing rules to restrict of ban Huawei and ZTE were "justified and compliant" with recommendations in place. It added "consistently with such decisions, and on the basis of a broad range of available information, the Commission considers that Huawei and ZTE represent in fact materially higher risks than other 5G suppliers". Alongside outlining progress across the economic area, the EC announced it will avoid exposure to Huawei and ZTE in its own procurement of telecommunications services. The toolbox implementation report found ten nations has imposed restrictions on use of 5G equipment from so-called high risk vendors, with one publicly announcing an outright ban on Huawei and ZTE products. It noted a further three EU member states are working on implementing national legislation and another had issued a warning to operators on use of ZTE and Huawei equipment. Huawei told Mobile World Live it "strongly opposes and disagrees with the comments made by representatives from the European Commission", adding "this is clearly not based on a verified, transparent, objective and technical assessment of 5G networks". It also took issue with "publicly singling out an individual entity" as a high risk vendor (HRV), noting doing this "without legal basis is against principles of free trade". "It is of paramount importance to emphasize that the discriminatory HRV assessment shall not be applied to any vendor without justified procedure and adequate hearing. As an economic operator in the EU, Huawei holds procedural and substantial rights and should be protected under the EU and Member States' laws as well as their international commitments." The vendor went on to highlight its commitment to security pointing to its Cyber Security Transparency Centre in Brussels and noted it is "committed to delivering globally-certified and trusted products and services, connecting millions of Europeans".

FCC Urged to Probe Impact of Broadband Data Caps

Federal Communications Commission (FCC) chair Jessica Rosenworcel sought backing for a formal notice of inquiry into whether data caps imposed by broadband providers hamper consumers' access to services or otherwise harm competition. In a statement, the FCC explained Rosenworcel is asking other commissioners to back an inquiry into whether regulatory action is required to ensure access to fixed and mobile broadband services, and whether the agency has the authority to take action over data caps. The FCC is also concerned with why caps still exist given many providers have the capacity to offer unlimited services. Rosenworcel is a long-term advocate of broad availability of internet access and closing the digital divide in the US. She stated it is "time the FCC take a fresh look" at the impact of data caps, noting internet access is not a "nice-to-have" anymore, rather a "need-to-have for everyone". The FCC noted many ISPs dropped data caps during the Covid-19 (coronavirus) pandemic, as broadband access became increasingly important during the health crisis, in particular for home working and schooling. In addition to pressing for an inquiry, the FCC launched a consumer portal to gather information on the impact of data caps on their internet usage.

Vodafone UK, Three UK Merger Plans Formally Announced

Following recent "reports that a deal was imminent" merger-announcement-expected-imminently-report-claims/,theproposed merger of British mobile network operators (MNOs) Vodafone UK and Three UK has now been formally confirmed. As per the terms of the deal, the former's parent company Vodafone Group will take a 51% stake in the enlarged business, with Hong Kong's CK Hutchison Group Telecom Holdings (CKHGT) taking the other 49%. In terms of the financial elements of the deal, it has been revealed that there is no cash consideration to be paid, with the MNOs instead contributing differential debt amounts upon its completion; approximately GBP4.3 billion (USD5.4 billion) in debt will come from Vodafone UK, with around GBP1.7 billion coming from Three UK. Meanwhile, it has been claimed that the transaction will result in 'substantial' efficiencies, which are expected to amount to more than GBP700 million of annual cost and CAPEX synergies by the fifth full year post-completion. Furthermore, one notable element of the proposed deal is that three years after its completion Vodafone Group will have a call option for CKHGT's 49% stake in the enlarged British company. In announcing the merger deal the parties also outlined plans for the combined business to invest GBP11 billion in the UK over ten years with a view to creating 'one of Europe's most advanced 5G Standalone [SA] networks, in full support of UK Government targets. Specific coverage targets were detailed, with it said that the merged entity will seek to extend 5G coverage to more than 99% of the population by 2034, while it expects to achieve greater than 95% 4G geographic coverage by 2027. In addition, the combined business aims to offer 5G fixed wireless access (FWA) to 82% of British households by 2030. Claiming that this proposed transaction will be 'great for competition', the official announcement of the deal suggested it will create 'a third operator with scale, levelling the competitive playing field, increasing competition to the UK's two leading converged operators and will also provide more choice in wholesale partners for the UK's already competitive MVNOs'. With the deal now subject to regulatory and shareholder approvals, it is reportedly expected to close 'before the end of 2024'.

USDA Announces USD714m in Grants for Rural Broadband Expansion

The US Department of Agriculture (USDA) has announced USD714 million in grants and loans to connect thousands of rural residents, farmers and business owners in 19 states to reliable, affordable high speed fixed broadband networks. The 12 June announcement includes investments in Alaska, Arkansas, Arizona, California, Georgia, Idaho, Kansas, Kentucky, Minnesota, Missouri, Montana, New Mexico, Ohio, Oklahoma, Oregon, South Carolina, Tennessee, Utah and Washington. USDA Secretary Tom Vilsack commented: 'High speed internet is a key to prosperity for people who live and work in rural communities. Thanks to President Biden's Bipartisan Infrastructure Law, we can ensure that rural communities have access to the internet connectivity needed to continue to expand the economy from the bottom up and middle out and to make sure rural America remains a place of opportunity to live, work, and raise a family.' Under President Biden's Investing in America agenda, the Bipartisan Infrastructure Law includes USD65 billion in funding to grant everyone in the US fixed broadband access.

FCC Considers Using 42GHz Band for Small Wireless ISPs

The Federal Communications Commission (FCC) has launched a proceeding to consider innovative sharing models for a 500MHz block of spectrum in the 42GHz band. The regulator notes that its examination of sharing models in high-band spectrum could not only inform how this band might best be used – particularly by smaller wireless ISPs – but also inform future uses of sharing models in spectrum management. As the spectrum between 42GHz-42.5GHz is largely unused, the FCC has proposed to explore an innovative, non-exclusive spectrum access model, which is ideal for experimentation due to the lack of incumbent licensees.

World Bank Units finalize Safaricom Ethiopia Support

A pair of World Bank Group units revealed financial backing for Safaricom Ethiopia, with its investment arm set to pump $157.4 million into the operator's parent company and provide a loan facility of $100 million. In a statement from the World Bank Group's International Finance Corporation (IFC) and Multilateral Investment Guarantee Agency (MIGA), the pair explained the support was designed to aid ongoing construction of Safaricom's network in the country. Ultimately, the backers believe this will improve access to affordable and reliable internet services. The IFC's equity investment will be in Global Partnership for Ethiopia in return for a minority stake in the venture, which has Vodafone Group and its Africa-based affiliates among its other shareholders. It will also provide the loan facility. Its expected investment was revealed by the IFC in September 2022, when it disclosed a proposed sum of $160 million. MIGA will provide ten-year guarantees of $1 billion to cover investments made by the operator's other investors. IFC VP of industries Mohamed Gouled said it hoped to "help the company create a competitive market for mobile connectivity". "The Ethiopian telecommunications market, as well as the country's economy and society, will benefit substantially from equitable, high-quality internet access and improved financial inclusion." Safaricom Ethiopia launched its first services in 2022, becoming the country's first private mobile operator and providing competition to state-owned Ethio Telecom. Authorities are expected to reignite the search for a third player for the market later this year, alongside potentially selling a stake in the incumbent.

ARCEP Slaps Mobile Operators with Formal Notice for 'Serious' QoS Breaches

Togo's Regulatory Authority for Electronic Communications and Posts (Autorite de Regulation des Communications Electroniques et des Postes, ARCEP) has slapped domestic mobile network operators (MNOs) Moov Africa Togo and Togocom (Togo Cellulaire) with formal notices concerning their continued 'serious breaches of service quality obligations' (QoS). Between 3 November 2022 and 13 January 2023, ARCEP carried out a national campaign to measure the quality of mobile services (voice and internet) which revealed that the two MNOs still do not meet minimum regulatory compliance thresholds. More specifically, ARCEP noted that the non-compliance rate is 63% for Moov Africa Togo (part of the Maroc Telecom group) and 51.4% for Togo Cellulaire (majority-owned by Axian Group). In a press release the watchdog confirmed: 'Faced with these serious and continuous violations combined with the weak improvement in the quality of service [QoS] observed over the last 18 months of around 5% for Moov Africa Togo and 8% for Togo Cellulaire, the General Management of ARCEP opened a sanction procedure on 14 March 2023 against [both companies].' Having completed its report, at the recent session held on 31 May 2023, the regulator 'decided to give formal notice to Moov Africa Togo and Togo Cellulaire and to grant them a period of six months to make the investments and implement the necessary corrective actions with a view to complying with the regulatory service quality indicators and thresholds, under penalty of sanction.'

EC Approves Telenet-Fluvius Fiber Joint Venture

Belgian full-service provider Telenet and Flemish utilities group Fluvius received formal clearance from the EC on Wednesday for their planned fiber-to-the-home (FTTH) network joint venture. Telenet said the approval fulfilled an important step to finalize the agreement and allows the pair's new infrastructure company, currently under the working name NetCo, to effectively launch early in July. The partners announced an agreement in July 2022 to jointly build 'the network of the future', deploying a hybrid network strategy to enable speeds of up to 10Gbps for all its customers. Up to 78% of all homes in Flanders and parts of Brussels are expected to be passed by fiber, with the majority to be covered in the first eight years. In other areas, NetCo will further upgrade and expand the technology of the Hybrid Fiber Coaxial (HFC) network. Overall, the partners will invest up to EUR2 billion (USD2.14 billion). NetCo will operate a fully open access network providing non-discriminatory wholesale access to interested retail telecoms operators, including Telenet and Orange Belgium. John Porter, CEO of Telenet, said: 'I am very happy that the European Commission has given us the green light to build the network of the future together with Fluvius. Our networks are already 90% fiber today and thanks to this cooperation, we will soon also deploy fiber to the last mile where needed. This approval will give new impulses to our economy and will allow our region to take everyone on the digital highway.' Following the EC's green light, Telenet and Fluvius are now expected to close the transaction on 1 July 2023. Telenet will have a 66.8% stake in NetCo with Fluvius owning the remaining 33.2%. Telenet says that NetCo will be fully funded with no dependency on obtaining incremental external financing.

PTA Takes Action Against Illegal Provisioning of Internet Services

Pakistan Telecommunication Authority (PTA) continues its determined efforts to eliminate illegal provision of internet services. In this regard, PTA, in coordination with the Federal Investigation Agency (FIA), successfully conducted raids in Daharki, District Ghotki and Johar Town, Lahore. The raid targeted an illegal internet service provider located at Zafar Bazar Road in Daharki during which equipment of illegal ISP was confiscated. While in Lahore, operational internet setup was found, being operated without valid license. Two persons were taken into custody and relevant equipment (switches/routers etc) were confiscated. The office was sealed and FIA is probing further enquiry as per law. This achievement can be attributed to PTA's unwavering commitment, continuous monitoring, and persistent efforts to curb illegal internet services. These actions are crucial in preventing tax evasion and revenue misreporting, thus curtailing loss to the national exchequer. The public is advised to avail telecom services from only PTA licensed operators to avoid sudden discontinuation of service.

CADE Approves Winity-Vivo Network Sharing Deal

Brazil's Administrative Council for Economic Defence (Conselho Administrativo de Defesa Economica, CADE) has approved without restriction an industrial network exploitation contract (contrato de exploracao industrial de rede, EIR) between Winity Telecom and Telefonica Brasil (Vivo) for the use of the 700MHz band in 1,120 municipalities. The decision was made public on Tuesday 9 May. Publishing its decision, CADE stated that the tie-up 'allows the expansion of coverage in areas with low density and less economic interest.' The Winity Telecom, a holding company backed by alternative asset management firm Patria Investimentos, hopes to secure a RAN sharing agreement with Vivo to support its independent 700MHz rollout, while Vivo expects to gain access to 2×5MHz of Winity's 2×10MHz spectrum holdings in the aforementioned locations. Previously, Winity successfully bid on a national 2×10MHz 700MHz license in Brazil's November 2021 5G spectrum auction, paying BRL1.428 billion (USD276.8 million) – the highest bid for a single spectrum lot in the auction. The newcomer plans to build 5,000 cell towers by 2029 and establish itself as Brazil's first wholesale operator.

Government to Divest DNB Stake Once Latter Achieves Network Rollout Target

Digital Nasional Berhad (DNB), the state-owned company currently tasked with rolling out 5G infrastructure in Malaysia, will be taken over by a private entity once it achieves a stated population coverage target. Confirming these plans in an interview on Bernama TV, Datuk Mohd Ali Hanafiah Mohd Yunus, the COO of local regulator the Malaysian Communications and Multimedia Commission (MCMC), said that once DNB reaches 80% population coverage a private entity will take over the company and the government will withdraw its holding An announcement regarding the state's plans for its shareholding in DNB comes just a few days after confirmation that the government will allow the deployment of a second 5G network from next year, subject to DNB achieving its rollout target.

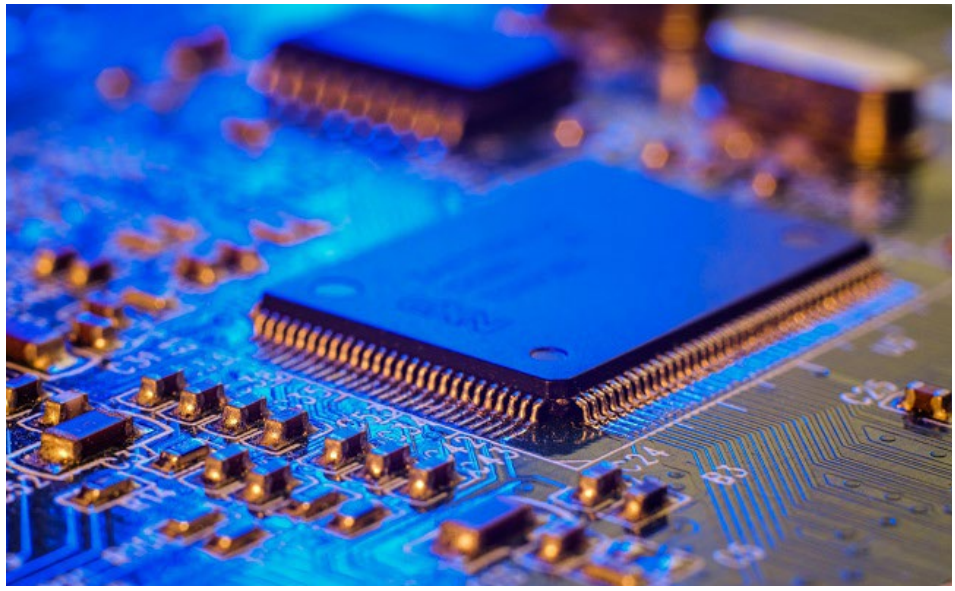
Dialog Axiata and Bharti Airtel Lanka to Merge

India's Bharti Airtel announced yesterday (2 May) that it has entered into an agreement with Malaysia-based Axiata Group to merge their respective operations in Sri Lanka. The proposed tie-up of Dialog Axiata and Bharti Airtel Lanka will provide the latter with access to a larger user base in the island nation, the parent said, adding that if the transaction is approved Airtel will receive 'an interest in Dialog equal to the fair value of Airtel Lanka'. Furthermore, under the proposal Airtel will reportedly be issued with additional shares in Dialog upon conclusion of the agreement. 'Discussions about the proposed transaction are ongoing between the parties as well as with the relevant regulatory authorities in accordance with applicable laws and regulations. The proposed transaction is subject to the execution of definitive agreements and the fulfilment of all necessary closing conditions, including applicable regulatory and shareholder approvals,' the agreement read. The company will issue further announcements in due course on the basis of any material developments, it added.

EU Regulators Push Back Deadline on Orange-MASMOVIL Deal to 4 September

Antitrust regulators for the EU have extended the deadline for their final ruling on the proposed EUR18.6 billion (USD20.5 billion) merger of Spanish telcos Orange Espana and Grupo MASMOVIL until 4 September 2023, according to a European Commission filing dated 28 April. On 3 April EU antitrust regulators launched a full investigation into the planned tie-up amid concerns on how it might adversely affect competition in the local market. The EU's competition watchdog expressed significant concerns over the plan noting: 'The transaction would reduce the number of network operators in Spain, thereby eliminating an innovative and significant rival. This could lead to higher prices and lower quality of telecom services for customers.'

EC Signs-Off €8.1B State Funding for R&D Push



The European Commission (EC) approved 14 countries to pump a total of €8.1 billion into R&D covering communications and microelectronics, with major industry players including Ericsson, Nokia and Orange poised to be involved in the projects. Under the banner of Important Project of Common European Interest microelectronics/communication technologies (IPCEI ME/CT), it aims to fund projects covering every stage from research to early industrial deployments including chip design and manufacturing. Alongside the €8.1 billion in public funding, an additional €13.7 billion is expected to be added to the pot from private sector investments. Across the 68 R&D projects, 56 companies will directly contribute including: Airbus, Analog Devices, ASML, Bosch, Ericsson, Infineon, Nokia, NXP, Orange, Renault, Rohde & Schwarz and STMicroelectronics. There are also a further 30 associated participants, which include Vodafone Spain, and around 600 indirect participants contributing through existing collaborations with the primary parties involved. Goals of the various projects match wider efforts in the European Union to push digital and green transformation, alongside boosting local chip manufacture. Specific aims of work under the IPCEI ME/CT are to develop technologies that go beyond what is currently available in the microelectronics and communications sectors, the EC stated. These include "developing energy-efficient and resource-saving electronics systems and manufacturing methods" and technology to advance "many sectors, including communications (5G and 6G), autonomous driving, AI and quantum computing." Other areas targeted include supporting companies active in the energy generation and distribution sectors in green transitions. Results of the research "may" hit the market from 2025, it added, though the scheme is scheduled to run until 2032. Countries funding the projects include Finland, France, Germany, Greece, Italy, the Netherlands, Poland and Spain. The initiative is the sixth IPCEI approved under European Union rules, which set-out criteria of how several member states can collaborate on funding transitional projects in areas deemed a priority in the region.

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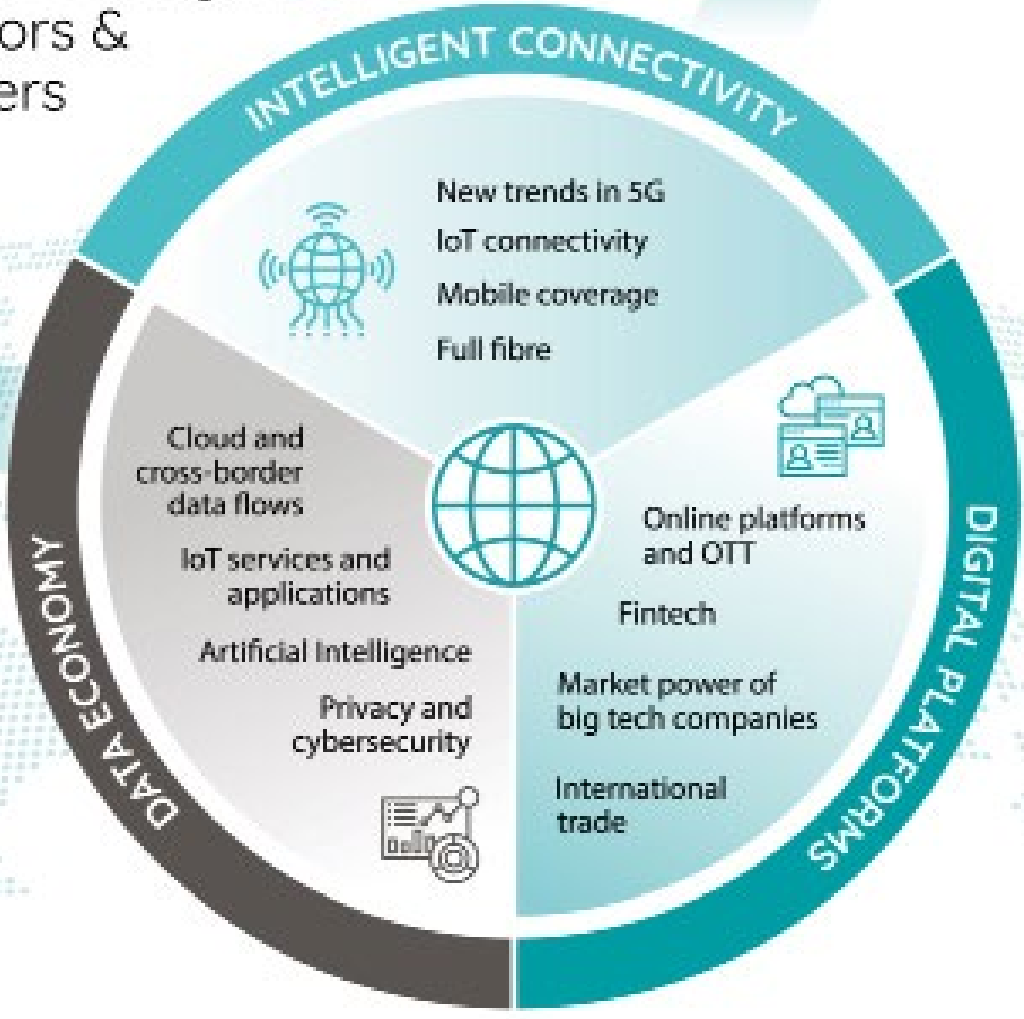

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regulation made simple

A SNAPSHOT OF REGULATORY ACTIVITIES IN THE SAMENA REGION

Afghanistan

Industry watchdog the Afghanistan Telecom Regulatory Authority (ATRA) has set price ceilings for voice calls and data services, Ariana News writes, citing ATRA spokesperson Jalal Shams. According to the official, the price ceiling for calls was set at AFN2.2 (USD0.025) per minute, with charging calculated based on 30-second increments, down from 60 seconds previously. Maximum price for data services, meanwhile, was lowered to AFN110 per GB, down from AFN250. The official went on to note that the ATRA is working on improving service quality for voice calls and data services. To address the issue, the regulator is looking into distributing additional spectrum or reorganizing existing spectrum usage. (May 22, 2023) www.commsupdate.com

Bahrain

The latest research published by the Telecommunications Regulatory Authority (TRA) shows download speeds on 5G networks in Bahrain reached a peak of 3.2Gbps in 2022, a significant increase on the 1.3Gbps offered by operators when 5G was launched in the Kingdom in 2019. The TRA's 2022 quality of service (QoS) audit found the average 5G download speed achieved by the Kingdom's three mobile network operators (MNOs) – Batelco, stc and Zain – increased from 721.1Mbps in 2021 to 900.9Mbps last year, while average uplink throughput rose from 76.2Mbps to 111.4Mbps. Furthermore, the regulator highlighted that 4G network average downlink speeds have more than doubled since 2020, rising from 84.7Mbps in 2020 to 266.3Mbps in 2022. The QoS survey was conducted between 30 October 2022 and 18 January 2023. (June 9, 2023) www.commsupdate.com

The Telecommunication Regulatory Authority (TRA) is proud to announce a significant milestone in enhancing consumer protection and empowering consumers. On Monday, May 22, 2023, a historic signing ceremony was held where the CEOs of all licensed operators were present and signed the undertaking. This collaborative effort marks a groundbreaking achievement, making Bahrain the first country in the region to implement consumer protection measures through an undertaking. Effective September 1, 2023, the new undertaking will introduce five main consumer protection measures. The Contract Summary: where licensed operators will provide consumers with a concise document along with their service contracts, summarizing the key terms and conditions of the services they are subscribing to. Contract Termination and End of Contract Notifications: consumers will receive an end-of-contract notification when their service contracts end, which will specify the date on which the contract will end. Furthermore, if a consumer requests to terminate a service, they will be informed of any outstanding charges, including early termination fees. Billing Transparency and Accuracy: in which licensed operators are committed to providing consumers with transparent tariff information and accurate billing and shall implement measures to ensure that billing information is error-free across all subscriptions and billing methods, giving consumers confidence in the accuracy of their bills. Tele-sales, Value-Added Services, and Multi-Factor Authentications: Licensed operators shall only be promoting their telecommunications services and products in a fair, transparent, accurate, and responsible way. Key terms and conditions, including tariffs, contract terms, and termination conditions, will be clearly communicated. Additionally, consumers will have direct access to view their service subscriptions, manage value-added services, device installment plans, and track data usage. Service Quality Levels: where if a consumer experiences a service or product quality level that falls below the promised standards and the issue is not resolved within a reasonable timeframe, consumers will have the right to terminate their service contracts without incurring early termination charges. This provision ensures that consumers receive the quality of service they have been promised. The TRA commends the CEOs and management teams of all licensed operators for their commitment to consumer protection and for signing this undertaking. Their dedication to improving consumer experiences sets a positive example for the telecommunications industry in Bahrain and the wider region. Philip Marnick, General Director of the TRA, expressed his enthusiasm, stating, "The signing of these groundbreaking undertaking solidifies Bahrain's leadership in prioritizing consumer protection. We commend the licensed operators for their commitment to empowering consumers. This initiative will elevate consumer experiences and reinforce Bahrain's position as a regional leader." Sh. Abdulla bin Humood AlKhalifa, the Director of Consumer and Communications, added, "Bahrain

is setting a new standard in the region with the introduction of these comprehensive consumer protection measures. We extend our appreciation to the licensed operators for their support in safeguarding consumer interests. This collective effort will create a fair and transparent telecommunications market, empowering consumers and fostering long-lasting trust." The TRA believes that these measures will strengthen the telecommunications market in Bahrain, providing consumers with the confidence and trust they deserve.

(May 22, 2023) www.tra.org.bh

Bangladesh

The telecom regulator is set to introduce fixed maximum tariff rates for mobile data packages with the aim of ensuring simple and affordable connectivity services for consumers. The Systems and Services, a division of Bangladesh Telecommunication Regulatory Commission (BTRC), is finalizing the conditions in this regard. We will introduce a rate schedule for data with a ceiling price for operators," said Shyam Sunder Sikder, chairman of the BTRC. "While they cannot offer prices above the fixed rate, they will be allowed to go below the threshold," he added. However, Sikder then said they are yet to finalize the terms and conditions as changes will be brought about after consulting stakeholders. The regulator is conducting consultations with various stakeholders, including mobile network operators, to understand their concerns and take into consideration different perspectives of the industry, said an official of the BTRC. However, this will likely be different from the maximum tariff for broadband internet connections set by the regulator in June 2021. As per guidelines, a customer has to pay Tk 500 per month for using a broadband connection with a minimum internet speed of 5 Mbps. For 10 Mbps, the rate is Tk 800 to Tk 1,000, and Tk 1,100 to Tk 1,200 for 20 Mbps. "The fundamental difference between mobile data and broadband is that mobile operators sell an amount of data while internet service providers sell speed," said Mustafa Jabbar, telecom minister. Mobile operators offer data to their customers by typically measuring it in megabytes (MB) or gigabytes (GB). For example, a mobile plan might provide a monthly data allowance of 5 GB, allowing customers to consume up to 5 gigabytes of data during that period. Meanwhile, speeds are measured in Mbps (megabits per second) and indicate the rate at which data can be transmitted over a broadband connection. "Overall, we will ensure that the data price in this tariff mechanism remains affordable for everyone," Jabbar said. He went on to say that operators in the country offer numerous packages, many of which are illogical. "There are 20 GB packages that last just three days. What can a customer do with so much data in such little time? Such packages will be eradicated," the telecom minister said. "Besides, the packages of different operators will be made similar, not like the heterogenous packages available in the market now," he added. For example, Teletalk offers a non-expiring 26 GB data package for Tk 309 while Grameenphone sells a 15 GB version for Tk 549. Such differences will not be present in the new mechanism and the number of data packages will be cut significantly, Jabbar said. "There is no discipline in the mobile data market as packages are very confusing and misleading. So, we want to bring order to these services," he added. The initiative has sparked both support and concern within the telecommunications industry. "Any pricing regulation should, in our opinion, go through a rigorous consultation procedure," said Taimur Rahman, chief corporate and regulatory affairs officer at Banglalink, the third-placed operator in terms of the number of customers. Additionally, it should consider the market's competitive environment in light of the fact that Bangladesh's market is unbalanced and uncompetitive, he said. "The data prices we currently offer are already below cost because everyone is essentially recovering it from voice services," he said. "Considering the current trend, we expect that soon the demand for voice will decrease significantly and mobile operators will be fully dependent on data," he added. Therefore, if there are ceilings and floors below cost, it will not be sustainable, according to Rahman.

(May 21, 2023) www.thedailystar.ne

Egypt

Minister of Communications and Information Technology, has witnessed the signing of a memorandum of understanding between the National Telecom Regulatory Authority (NTRA) and the US Federal Communications Commission (FCC). The MoU had a number of frameworks and mechanisms for joint cooperation in the areas of managing frequency spectrum and maximizing its revenues, disseminating and making available telecommunications services in remote areas, and educating and protecting telecommunications users and securing networks, in addition to many areas, especially with regard to building technological capabilities. The signing of the deal came within the activities of the first day of the Global Conference for Regulators (GSR-23), which is being held under the auspices of the President of the Republic and hosted by Egypt from 5 to 8 June in Sharm El-Sheikh, with the participation of 700 telecom regulators, policy makers and industry representatives from more than 100 countries. It also comes within the framework of enhancing cooperation between Egypt and the United States of America in the

field of telecommunications regulation and market governance. The memorandum of understanding was signed by Engineer Hossam El-Gamal, CEO of the NTRA, and Rosen Russell, President of the US Federal Communications Commission. The Minister of Communications held a meeting with Rosen Russell, Chairperson of the US Federal Communications Commission, and his accompanying delegation. Mechanisms for boosting cooperation and exchanging experiences between Egypt and the United States of America in the field of regulating the telecommunications sector and its new technologies were discussed. He also met with Hiroshi Yoshida, Deputy Minister of Communications and Home Affairs of Japan. The meeting discussed ways to enhance joint cooperation between Egypt and Japan in a number of areas of communication and information technology. The meeting discussed mechanisms for activating cooperation between Egypt and Japan in the field of communications and information technology within the framework of the Memorandum of Understanding signed between the two countries during the visit of the Japanese Prime Minister to Egypt last April, especially related to modern technologies, especially artificial intelligence, cyber security, digital capacity building, data centers, outsourcing centers, and 5 and 6G technologies.

(June 7, 2023) www.zawya.com

Hossam El-Gamal, the Executive Director of the National Telecom Regulatory Authority of Egypt (NTRA), received a high-ranking delegation from the National Communications Entity of Argentina headed by Mr. Claudio Ambrosini, the President of Argentina's Communications Entity, in presence of Gonzalo Urriolabeitia, the Ambassador of Argentina to Egypt. Both parties had an extensive meeting where mutual cooperation and expertise-exchange mechanisms in terms of telecom regulation, as well as telecom service governance across the market, were discussed. Moreover, both sides reviewed joint cooperation opportunities in addition to mutual collaboration programs pertaining to training courses and leveraging human capacities. Multiple topics of mutual interest were also tackled during the meeting, such as the mechanisms to disseminate and provide telecom services via the Universal Service Fund (USF), and how to embark on Egypt's leading experience in such field. The role of USF within the Presidential Initiative "Decent Life" to leverage and improve telecom networks' quality all over Egypt's countryside was further discussed. Moreover, both sides discussed topics of radio spectrum, technical resources and how to ideally utilize such resources, as well as cooperation methods with respect to user-right protection and reinforcing communication with users. In addition, the interactive services of My NTRA App. were also reviewed, especially after it was selected among the top 5 projects worldwide in terms of digital government, at the World Summit on the Information Society Forum (WSIS) subordinate to the International Telecommunication Union (ITU). Both sides also explored cooperation, expertise-exchange and training opportunities in digital services and how to ideally benefit from the experts of NTRA's Training Center, which has been recently accredited by the ITU Academy as an authorized international center. (June 4, 2023) www.dailynewsegypt.com

Iran

The Iranian government has earmarked USD20 million to continue its drive to pass millions of households with fiber-to-the-home (FTTH) infrastructure. A report from PressTV cites ICT Minister Issa Zarepour as saying that ten million premises are expected to be covered by the end of Iran's current calendar year in March 2024. Earlier reports suggested that around two million households had access to FTTH by last November. The government is hoping to oversee the rollout of minimum 25Mbps broadband speeds to 80% of households and 100% of businesses by 2025.

(May 15, 2023) www.commsupdate.com

Iraq

Iraqi mobile provider Korek Telecom has been ordered to pay USD800 million to settle a dispute over unpaid dues, industry watchdog the Communications and Media Commission (CMC) confirmed. CMC CEO Ali Al-Moaed was quoted as saying that the amount covers 'fees of licenses and equipment used by the company as well as other dues that have not been paid for years. The official added that the regulator would resort to other legal procedures if Korek failed to pay its obligations. The Kuwaiti logistics firm Agility, a former shareholder in Korek, announced in March that an international arbitration court had ruled in its favor against Korek and its controlling shareholder, awarding two of Agility's affiliates damages totaling USD1.65 billion. The dispute centered on allegations of fraud and corruption relating to the expropriation of Agility's investment in Korek Telecom.

(May 2, 2023) www.commsupdate.com

Jordan

Jordan intends to issue an international tender in July for the operation of its new fiber-optic telecommunication network. The Digital Economy and Entrepreneurship Ministry is preparing documents for the tender which will target global network operators, the Arabic language daily Alghad said, quoting an unnamed Ministry official. The Ministry will invite bids from competent companies as the government has almost completed the construction of a fiber-optic network that will link more than 3,000 public establishments throughout the Kingdom, the paper said. "The international tender will be issued next month…it involves the commercial operation and maintenance of the new network," it said. Operators will also assist the government in improving telecommunication and information technology infrastructure, encouraging investment in related projects, and expanding network coverage to all of Jordan besides possible connection with other networks in the region, it added. (June 13, 2023) www.zawya.com

The Telecommunications Regulatory Commission (TRC) said they received an application from a company seeking a license to provide satellite internet service in the Kingdom. The TRC has confirmed that the application is currently under review. According to the TRC, the legislation and instructions governing its framework already allow for the issuance of licenses for "satellite internet" services in Jordan. Bassam AlSarhan, chairman of the Board at TRC, stated that submitting a license application does not guarantee the immediate availability of the service. The process of providing satellite internet service is contingent upon obtaining the license. AlSarhan further explained that due to Jordan's diverse geography, exploring alternatives for mobile communication services is crucial. Satellite communication, he added, serves as a complementary solution in areas where traditional towers are restricted, such as the tourism region of Wadi Rum, where towers are prohibited to preserve the natural landscape. On October 31, 2022, AlSarhan announced the successful trial conducted by SpaceX in launching satellite internet services using low Earth orbit satellites. The experiment demonstrated impressive data download speeds, ranging from 100 to 367 megabytes. SpaceX, a leading company in internet service provision, operates a constellation of satellites designed for global internet coverage. SpaceX's Starlink network currently consists of over 3,000 satellites, with plans to deploy tens of thousands more in low-Earth orbits. These satellites, working in conjunction with terrestrial transmitting and receiving devices, aim to establish a comprehensive and worldwide internet network.
(May 28, 2023) www.jordannews.jo

The government is set to launch a unified digital platform to serve as a hub for electronic participation and interaction between government institutions and citizens, according to a well-informed government source in the IT sector. Through this platform, the government aims to optimize the electronic tools to bolster community participation, notably in the legislative process, governmental decision-making, and the enhancement of public services to better meet their needs, the source said. The source added that the platform's objectives also include fostering transparency, confidence, improving information quality and facilitating accessibility. It was revealed that a tender has been issued to initiate the implementation of this project. Efforts are currently underway to finalize the tender process and commence the construction of the platform. It is projected that the platform's initial trial version will be ready within the next six months. The source highlighted three key focal points of the platform, designed to encourage citizen engagement with the government in an electronic manner. Firstly, there is the electronic consultation aspect "E-Consultation", which entails conducting public consultations to gather opinions from relevant stakeholders and interested parties regarding government initiatives. By consolidating all public consultations on this platform, it eliminates the need for each institution to individually publish them on their respective websites and social media pages. The source further emphasized that the platform will also include a second element, where citizens can actively participate in the decision-making process through electronic means. The "E-Decision Making" component aims to involve beneficiaries in shaping government decisions, as it allows citizens to contribute to decisions pertaining to the availability of public services or to participate in political decision-making. Proposals could be presented to parliamentary councils and the Cabinet, allowing the government to study and share the results with the community or incorporate them in governmental priorities. The platform will feature a third component focused on open government data and electronic information sharing "E-Information" to provide information in a user-friendly format, ensuring accessibility and inclusivity for all citizens.
(May 24, 2023) www.zawya.com

Libya

The head of Libya's Government of National Unity, Abdul Hamid Dbeibeh, has approved the country's National Strategy for the Communications and Informatics Sector 2023-2027, Libya Herald reports. With years of military conflict and political divisions having damaged the country's telecoms infrastructure and disrupted network modernization and expansion efforts, the prime

minister said the new plan was a major event that will lay the foundations for the implementation of effective projects to develop communications in the country. Speaking at the signing ceremony, Abdelbaset Al-Baour, head of the Ministry of Communications and Informatics (MCIT, also known as the General Authority for Communications and Informatics), explained the strategy had been conceived within the framework of his department's vision to create a sustainable and secure digital sector serving a knowledge-based society capable of transforming Libya into an international transit center. It also aims to ensure the security of infrastructure and the integrity of confidentiality of data, in addition to improving economic growth and sustainable development and promoting digital skills. 'Through the strategy, the Communications Authority aims to provide communications for all at fair prices, create an enabling environment for communications and informatics, as well as use communications and informatics for good governance,' he added.

(May 5, 2023) www.commsupdate.com

Oman

The Telecommunications Regulatory Authority (TRA) is committed to developing the telecommunications services in the Sultanate of Oman and has envisaged covering a total of 98 percent of the population by mobile networks by the end of 2025. The ambitious goals set by TRA to be completed by 2025 also aims to have an infrastructure covering 75 percent of buildings by fiber optic services. It also aims to have 85 percent of buildings covered by fixed broadband networks and hopes to reach 100 percent in the total number of stations that support 4G and 5G services. The targets were revealed by the TRA on Sunday during a dialogue held on telecommunications infrastructure expansion projects in 2023. The meeting discussed the quality of services, basic measurement indicators for evaluating the quality and prices of telecommunications services in Oman along with the investments made during the past five years. The TRA said that the percentage of mobile phone subscriptions (as compared to the population) grew by 140 percent, while the percentage of fixed broadband coverage reached 80 percent (as against the total number of buildings). It also said that 12 regulations were issued, including on regulating communication towers. The bylaws regulate the rights of users of telecommunications services and the quality of communications services. The regulations also will help streamline the implementation of services in the field of telecommunications and standardize the introduction of voice or video communication services via the Internet Protocol. The TRA stated that the number of government schools that have been covered by telecommunication services until 2022 stood at 1,221, of which 1,146 schools were covered by 5G fibre optic network. It represented 94 percent of the total schools covered. A project is underway to transfer subscribers from 3G service to the 4G and 5G services. With effect from 2024, all stations operating with the 3G service will be upgraded to stations operating with 4G and 5G. During the meeting, TRA affirmed that its department is keen to establish a sustainable competitive environment for telecommunications services. It hopes to achieve the goal by monitoring the prices of services in telecommunications companies and ensuring the implementation of the principle of transparency in the case of services rendered by telecom firms to the service beneficiaries. (May 23, 2023) www.timesofoman.com

The Telecommunications Regulatory Authority (TRA) has issued an analysis on the quality of services in the wilayats of Thumrait, Al Khaboura, and Suhar Souk, which are conducted on a monthly basis. The 5G coverage in the Wilayat of Thumrait provided by Omantel was 83%, while the highest data download rate reached 399 Mbps, with an average of 94 Mbps. The 5G coverage provided by Ooredoo was 44 percent, with the highest data download rate of 843 Mbps, with an average of 535 Mbps. In Wilayat Al Khaboura, the excellent coverage rate of Omantel was 81 percent and the highest data download rate reached 1171 Mbps, with an average of 287 Mbps. The excellent coverage rate of Ooredoo was 51 percent and the highest data download rate was 885 Mbps, with an average of 200 Mbps. TRA also conducted measurements of the quality of telecommunications services in the Sohar Souq area, where the highest data download rate for Omantel was 1,268 megabits per second, with an average of 427 megabits per second, while the highest data download rate for Ooredoo was 285 Mbps, with an average of 82 Mbps. (May 8, 2023) www.omanobserver.om

Pakistan

The South Asian Telecommunication Regulators' Council (SATRC) Workshop on Policy, Regulation and Services (PRS) successfully concluded today after three days of discussions and deliberations on key matters related to the ICT regulatory landscape in South Asia. The workshop convened experts and representatives from various fields, including telecom and ICT regulatory bodies, the telecom industry, and academia etc. Over the course of 10 sessions, 45 experts shared ideas and best practices related to the workshop's topics. The outcomes of the workshop included emphasis on the significance of a national optical fiber backbone

for 5G networks and using the Universal Service Obligation fund to build it. Regional collaboration was deemed critical for reliable connectivity and reducing telecom costs. Other items focused on localizing OTT communication platforms, enabling framework for NGSO connectivity, LEO frequency band evolution and responsible satellite operations. Ethical challenges related to deep fakes and Artificial Intelligence (AI) along with the importance of cross-sector collaboration and digital transformation was also highlighted by Chair of SATRC working group PRS, DG S&D during his summary of the workshop. Member (Compliance & Enforcement), Pakistan Telecommunication Authority (PTA), Mr. Khawar Siddique Khokhar praised SATRC as an exemplary model of regulatory collaboration. He said that the Workshop is important for the discussion of current and future dynamics of the ICT landscape in South Asia and beyond. During his closing remarks, the Secretary General of Asia-Pacific Telecommunity (APT), Mr. Masanori Kondo said that the diverse perspectives and expertise at the Workshop widened insights and ignited new possibilities for ICT development. He thanked PTA for hosting the Workshop and for the hospitality extended to the delegates. The SATRC Workshop on PRS was hosted by PTA and was attended by delegates from the 9 SATRC member countries as well as representatives from national and international organizations. The Workshop provided a platform for constructive dialogue and exchange of ideas on key issues related to the telecom/ICT sector in the region.

(May 10, 2023) www.pta.gov.pk

Qatar

The Communications Regulatory Authority (CRA) has published the results of the Consumer Satisfaction Survey 2022. The survey presented detailed findings of satisfaction among consumers in Qatar with their telecom service providers, Ooredoo Qatar and Vodafone Qatar. The survey covered all aspects of telecom services, including network coverage, service value, rate plans and tariffs, billing and payment, customer service and complaint resolution. The survey was conducted among more than 2,500 individuals from different segments of Qatar's population. It used a Computer-Assisted Personal Interviews (CAPI) method, whereby respondents were asked to go through a questionnaire, available in both Arabic and English. The average survey duration was 30 minutes. The findings indicate that overall consumer satisfaction with telecom services in Qatar is relatively high with 79% of respondents expressing satisfaction. Voice services, both mobile and fixed, received the highest levels of customer satisfaction at 82% and 83%, respectively. In terms of Internet services, fixed Internet had a satisfaction rate of 78%, while mobile Internet had a rate of 74%. The most important telecom services, as ranked by consumers in descending order, were mobile voice, mobile Internet, fixed Internet and fixed voice. Amel Salem al-Hanawi, director of Consumer Affairs Department at CRA, said: "We are pleased with the high overall satisfaction scores for telecom services in Qatar. The survey aligns with CRA's role in regulating the telecom sector, keenness to balance between the obligations of service providers and the rights of consumers, in addition to ensuring that the competition benefits consumers by accessing advanced and high-level telecom services. "This survey is one of the main instruments that CRA adopts to assess, in a transparent manner, the quality and efficiency of services provided to consumers. CRA utilizes such surveys to ensure the improvement of services provided to consumers in Qatar." The study involved qualitative and quantitative research, including focus group discussions and a national survey, to assess consumer satisfaction with telecom services in the country. Secondary research was also conducted to benchmark the performance of telecom services and service providers at a regional and international level.

(June 12, 2023) www.gulf-times.com

The Communications Regulatory Authority (CRA) has issued the Quality of Service (QoS) Regulatory Framework with the aim of raising the minimum requirements for the Key Performance Indicators (KPIs) for the QoS of public telecommunications services in Qatar. The framework adds new obligations and KPIs on the licensed telecom service providers that must be met to ensure that high-quality telecom services are delivered. The KPIs cover a range of areas for fixed, mobile, and broadband services, including network availability, call setup success rate, voice quality, call completion ratio, and more. Amel Salem al-Hanawi, director of Consumer Affairs Department at CRA, said: "The issuance of the QoS Regulatory Framework is consistent with CRA's keenness to ensure that consumers in the State of Qatar access more advanced and high-quality telecom services. "This objective is to be achieved through developing proper regulatory instruments, granting the telecom service providers the necessary licenses, determining the necessary obligations, and monitoring their compliance with these obligations." CRA conducts an annual QoS audit of mobile networks, benchmarking set KPIs to obtain results that reflect the experience of consumers and publishes the audit results on CRA's website to ensure transparency. In addition, the service providers will be submitting and publishing QoS reports on a regular basis based on the QoS Regulatory Framework. The QoS Regulatory Framework, the annual audit conducted by CRA, and the service providers' QoS reports benefit all relevant parties, as they enable consumers to make informed decisions when choosing the service provider that meets their needs and enhance the competition to provide high-quality telecom services at competitive prices, and thus develop the telecom sector in the State of Qatar.

(May 1, 2023) www.gulf-times.com

Saudi Arabia

The Communications, Space and Technology Commission (CST) invites the public to submit their input on the "Regulations of Radio Spectrum Use for Broadcasting Services" document. The regulations are aimed to regulate the use of radio spectrum for audio and television broadcasting, foster its emerging technologies, and increase the efficiency of spectrum use in the broadcasting services. Additionally, CST highlights that the document covers the main regulatory aspects of spectrum use in broadcasting services. Most notably, the regulations include the spectrum licensing process, international obligations, technical conditions and frequency bands for broadcasting services. Moreover, CST is keen on supporting the broadcasting sector's development by enhancing the utilization of its allocated spectrum and following the best global practices. Therefore, CST developed this regulatory document to ensure spectrum availability for broadcasting services, alignment with the international standards to protect broadcasting applications from harmful interference and promote innovative spectrum management and emerging technologies.

(May 17, 2023) www.cst.gov.sa

Sri Lanka

The Telecommunications Regulatory Commission (TRCSL) has revealed that the country's recently appointed central clearinghouse, Lanka Number Portability Services (LNPS), has opened the tender process for 'the supply, installation, testing, and commission' of number portability (NP) on the island. Back in November 2022 Bharti Airtel Lanka CEO Ashish Chandra provided an update on the long-running saga to introduce fixed number portability (FNP) and mobile number portability (MNP), when he revealed that a new company 'Lanka Portability' had been created to act as the central company to handle it, and that all domestic service providers have a stake in it.

(May 4, 2023) www.commsupdate.com

Tunisia

Tunisia is planning for the commercial launch of 5G services in 2024 and will set out a detailed roadmap for the introduction of the technology in the next few weeks, said Minister Communication Technologies Nizar Ben Neji. The official highlighted the importance of the technology to the country's digital strategy, noting: '[5G] will guarantee a very significant increase in speed. It promises ultra-fast connectivity, reduced latency and increased capacity, thus opening the way to new possibilities and applications, especially those related to IoT and connected objects in general. It will inspire us to redefine the boundaries of technological development and will be a key catalyst for innovation and technological progress in all fields.' (May 10, 2023) Agence Ecofin

Turkey

The Middle East DNS Forum was organized by the Internet Assigned Names and Numbers Corporation (ICANN) at Wyndham Grand Istanbul. Ömer Abdullah Karagözoğlu, Head of Information Technologies and Communications Authority, attended the event, which was organized to provide information about DNS-related issues and new developments in technologies. Speaking at the event, President Karagözoğlu stated that the internet makes significant contributions to sustainable growth, innovation and development and that some statistics on internet usage in Turkey are important, and said, "As of the end of 2022, the number of fixed line subscribers will reach approximately 11.2 million and the number of mobile subscribers to approximately 90.3 million. reached. Looking at the broadband data, there are 90.6 million broadband internet subscribers in total, of which approximately 19 million are fixed subscribers and 71.7 million mobiles. The number of internet subscribers increased by 2.8% compared to the same period of the previous year. In terms of fiber infrastructure, fiber length increased by 9.8% at the end of 2022 compared to the

same period of the previous year, exceeding 517 thousand km." made statements. Karagözoğlu said, "The first legal regulation regarding internet domain names in Turkey was enacted in 2008 with the Electronic Communications Law (EHK) numbered 5809 and the duty and responsibility of determining the policies regarding internet domain names was given to the Ministry of Transport and Infrastructure. With the Internet Domain Names Regulation, BTK has been authorized to carry out the works and transactions related to the registration of domain names with the ".tr" extension, to establish and operate TRABIS, or to ensure the establishment and operation of TRABIS to a third party within the framework of the procedures and principles determined by the Ministry. President Karagözoğlu said, "With the commissioning of TRABIS, consumers can only apply for and renew their domain name through "Registration Agencies" authorized by the BTK, except in obligatory cases. Currently, 19 companies are authorized as Registrars. In addition, the ICTA, without prejudice to the right of the complainants to apply to the court in order to mediate the disputes arising from the domain names, will be responsible for the conflict resolution mechanism to be applied in the resolution of the disputes regarding the domain names with the ".tr" country code extension, and TRABIS, through 2 institutions authorized as the Dispute Resolution Service Provider. Since then, more than 150 disputes have been resolved." made statements.

(May 9, 2023) www.btk.gov.tr

United Arab Emirates

The Telecommunications and Digital Government Regulatory Authority (TDRA) released 'u.ae 2022... Figures and Facts' Report, which sheds light on the great success story of the portal since its launch, as the interface of the UAE Government official presence, and the main reference for government information and services. The report includes milestones, figures, results and indicators related to the portal's performance and the level of its popularity locally and globally. Moreover, the report highlights the journey of u.ae, which was launched in 2001, starting with its establishment as a static site under the name of (government.ae), through the stage of the interactive site based on an open-source content management system, to the stage of the one-letter domain (u.ae), which is the shortest domain name in the world. Commenting on the report, H.E. Eng. Majed Sultan Al Mesmar, TDRA Director General, said: "The UAE Government official portal (u.ae) is the UAE interface online, and an interface of its digital presence. We are pleased with the results achieved by the portal in terms of the level of visits, searches and browsing. We are also pleased with the comments and suggestions received from the portal users that have contributed over time to developing it and improving its performance in line with international best practice." H.E. Al Mesmar added: "TDRA's team works tirelessly on developing the portal and aligning it with the higher national directions, manly 'We the UAE 2031' vision with its four pillars related to government, society, economy and international relations. We developed the portal based on our role as an enabler of the digital government, and on our strategic goal to enhance the digital lifestyle in line with the directives of the wise leadership by making digital transformation a path to creating a happy and sustainable future in the UAE." u.ae reflects the best international experiences, such as the customers' journey, adopting the latest international standards and choosing the best content management system. The report showed a steady increase in the number of visitors to the portal, as the number of visitors approached 19 million in 2022, with more than 30 million visits. u.ae visitors came mainly from the UAE. During the last five years, more than 35.6 million visitors from the UAE visited the portal, while India came second with 4.67 million visitors in the same period, and the Kingdom of Saudi Arabia third with 2.72 million visitors. As for the most popular pages, the page of applications for entry permits and visas and their validity came at the top of the list, as the average time spent by the visitor browsing this page was 4:16 minutes. Travel to the UAE page came second with an average visit time of 4:07 minutes, and the Emirates ID page came third with an average visit time of 3:51 minutes. According to the report, English came as the most used language with 48.8 million visitors, followed by Arabic with 8.13 million visitors, then French with 1.18 million visitors, then German, Russian and Chinese. The report showed the inclusion of 2,630 digital services on the portal, provided by 221 federal and local government entities. u.ae consists of four main sections, including the information and services section, the UAE section, the E-Participation section, and the media section. The information and services section addresses many topics such as work, investment, tourism, infrastructure and visa, in addition to a complete list of all government services in the country. The second section covers the history of the UAE in different eras, as well as the plans and strategies of the UAE to foresee the future and achieve comprehensive development. This section also covers the country's efforts to achieve the Sustainable Development Goals set by the United Nations. The E-Participation section lists the channels of communication with the UAE Government, as well as platforms for consultation, instant chat, and others.

(May 23, 2023) www.tdra.gov.ae

REGULATORY ACTIVITIES BEYOND THE SAMENA REGION

Argentina

Argentina's multi-band 5G spectrum auction is expected to be held in June this year, after a series of delays. The new timeline was revealed by Gustavo Lopez, vice president of the National Communications Agency (Ente Nacional de Comunicaciones, ENACOM), who was speaking at the Internet Day event in Buenos Aires this week. Mr. Lopez said: 'The political will is to do it as soon as possible.' The 5G auction is expected to include the following frequency bands: 1427MHz-1518MHz (1500MHz band); 1770MHz-1780MHz/2170MHz-2180MHz (AWS-3 band); 2300MHz-2400MHz (2.3GHz band); 3.3GHz-3.6GHz (3.5GHz); 24.25GHz-25.75GHz (26GHz band); and 37GHz-43.5GHz (38GHz band). As per government projections, the auction could raise as much as USD1.4 billion.

(May 18, 2023) BNAmericas

Armenia

The Public Services Regulatory Commission (PSRC) has announced that, upon completion of a tender process for licensing 700MHz and 800MHz spectrum for 5G services, it has granted permits to two Armenian mobile network operators (MNOs). In a press release (dated 8 May), the telecoms regulator confirmed that Team Telecom Armenia was declared the winner of 2×20MHz of spectrum in the 700MHz band, and MTS Armenia (Viva-MTS) was the winner of the 2×10MHz segment offered in the 800MHz range. Each company reportedly agreed to pay AMD2.250 billion (USD5.53 million) for their licenses – the term period of each has not been disclosed – plus an annual usage fee of AMD1.176 billion. Having completed the licensing process, PSRC states that by 2025 a 5G mobile broadband network must be launched in major cities across the Republic, including Yerevan, Gyumri and Vanadzor, 'mainly with the introduction of Internet of Things (IoT) technology'.

(May 9, 2023) www.commsupdate.com

Australia

An increasing number of residential fixed broadband subscriptions are for a service offering downlink speeds of 25Mbps, the Australian Competition and Consumer Commission (ACCC) has reported. In publishing its most recent quarterly 'NBN Wholesale Market Indicators Report', the watchdog noted that the number of residential subscriptions for a 25Mbps service had increased by 125,000 in the first three months of this year to reach around 1.4 million, or 16% of the NBN wholesale market, as of 31 March 2023. By comparison, while the ACCC noted that the 50Mbps speed tier remained the most popular – accounting for 52% of the market – subscriptions to this level of service had declined by 99,000 in the first quarter of 2023, to just over 4.5 million. According to the regulator, such declines were 'likely due to the removal of wholesale discounts last year'. At the top end of the speed scale, meanwhile, it highlighted the increase in uptake for plans offering downlink speeds of 250Mbps or higher, with subscriptions increasing by 25,000 in Q1 2023 to reach 198,000, or around 2% of the NBN wholesale market. With regards to market shares, the ACCC's report showed that subscriptions for the largest three access providers – Telstra, TPG and Optus – continued to decline, dropping by 58,000 services collectively, or 0.9%, reducing their market shares to 42.0%, 22.0% and 13.1%, respectively, at the end of 1Q23. By contrast, Vocus – the only other operator for which an individual market share is broken out by the ACCC –increased its slice of the pie to its highest ever level, 7.5%. Other providers, led by the likes of Aussie Broadband, Superloop and Southern Phone, also continued to grow their market shares it said, accounting for a combined 15.4% of the market as of end-March 2023.

(Jun 13, 2023) www.commsupdate.com

Following what it termed 'a thorough assessment' which had been 'informed by constructive and extensive engagement with NBN Co, Retail Service Providers, consumer representatives and other stakeholders', the Australian Competition and Consumer Commission (ACCC) has rejected NBN Co's proposed variation to its Special Access Undertaking (SAU). Announcing the publication of its draft decision related to the matter, ACCC Commissioner Anna Brakey said: 'The ACCC can only decide to accept or reject NBN Co's variation proposal, and our draft decision today is to reject this proposal. However, in making our decision, we have identified a number of aspects of it that reflect issues raised in the ongoing industry consultation process and which represent a significant improvement on the current SAU and earlier variation proposals.' The executive added: 'We have also outlined some specific issues NBN Co could address to accelerate the pathway to an acceptable variation.' The ACCC said it was not satisfied that the proposed variation would result in access terms

that promote the long-term interests of consumers over its duration, due to limitations in the processes under which those terms of access are periodically reset. Meanwhile, it also noted that it considered the proposal would require revenue allowances from 1 July 2032 'that would not create incentives for a regulated entity to act efficiently'. Further, the Commission also considered that NBN Co's proposed access terms for the first three years following acceptance of the variation would 'pose risks to efficiency and competition'. According to the regulator, this is because the cost of services supplied using the standard wholesale offer would fall over a very wide range, and the variation would not commit NBN Co to providing suitable measures to assist retailers with this residual cost uncertainty. NBN Co submitted a revised SAU variation back in November 2022, having withdrawn an earlier proposal in July that year after a consultation by the ACCC had identified 'a range of potential issues' with the initial plans. Note that the SAU provides a framework for the economic regulation of the National Broadband Network (NBN) until 2040 and includes rules for setting the maximum prices and service standards that NBN broadband providers can expect to receive. (May 2, 2023) www.commsupdate.com

Bahamas

The Utilities Regulation and Competition Authority (URCA) has launched a public consultation regarding 5G in the Bahamas. The consultation follows a stakeholder engagement exercise in 2022, which involved dialogue with a number of sector-specific focus groups, as well as incumbent operators the Bahamas Telecommunications Company (BTC), Cable Bahamas Limited (CBL) and ALIV. The first wave of stakeholder feedback suggested that the provision of basic internet connectivity is more important than 5G availability for end users and public sector participants, especially in the Family Islands where reliable connectivity has been a challenge since Hurricane Dorian in 2019. In addition, it is believed that current mobile and fixed broadband services are considered sufficient to meet prevailing demand for connectivity in the Bahamas. At present, the watchdog believes there is 'limited established demand' for 5G services. (May 12, 2023) www.commsupdate.com

Brazil

The National Telecommunications Agency (Agencia Nacional de Telecomunicacoes, Anatel) has opened the process to evaluate the forfeiture of Oi's fixed switched telephone services (servicos de telefonia fixa comutada, STFC) concession. The review of the licensing situation commenced on 8 May and was prompted by Oi's failure to fulfil certain universal service and backhaul obligations by December 2022. By ceasing to be a concessionaire, the cash-strapped telco would have more freedom to seek an investor to assume its debts and take over its operations without having to adhere to the strict regulatory obligations connected to the concession. However, forfeiture of the STFC license is one of several regulatory options on the table. Oi could be allowed to migrate to an authorization licensing model, meaning an end to the arbitration process. Alternatively, the STFC regime could be ended by government decree. Oi is the STFC concessionaire responsible for Regions I and II, which include all Brazilian states except Sao Paulo and the Distrito Federal (DF). The company's current concession agreements are valid until 31 December 2025. The debt-wracked telco closed out December 2022 with 7.771 million fixed voice subscriptions, down from 8.651 million one year earlier, and a peak of 21.293 million at end-2009. (May 19, 2023) www.commsupdate.com

The Board of Directors at Brazil's National Telecommunications Agency (Agencia Nacional de Telecomunicacoes, Anatel) has approved a number of extensions for spectrum licenses held by the likes of Claro Brasil, TIM Brasil, Telefonica Brasil (Vivo) and Algar Telecom. The decisions were rubber-stamped by the watchdog on 28 April and published in the Official Gazette on 2 May. While the precise spectrum blocks vary depending on location, all 1900MHz and 2100MHz licenses are now valid until 30 April 2038, while the 1800MHz concessions will run until 22 December 2032. In addition, Anatel rejected Vivo's request to extend its right to use 900MHz spectrum. As per the official documentation, the operator 'did not meet the technical conditions necessary for granting its request'.

(May 3, 2023) www.commsupdate.com

Bolivia

The President Luis Arce Catacora has announced that state telco Entel is preparing to launch 5G technology to coincide with the 15th anniversary of its renationalization, which is being celebrated this month. The telco has also disclosed its financial results for 2022. Entel's net income reached BOB4.561 billion (USD644.1 million) in 2022, up from BOB4.413 million in 2021, while net profit increased from BOB519 million in 2021 to BOB539 million in 2022. The Bolivian government issued a decree in May 2008 ordering the renationalization of the telco. Prior to that Entel was 50.9%-owned by Euro Telecom International (ETI), itself owned by Telecom Italia, via the holding company International Communication Holding (ICH).

(May 7, 2023) www.commsupdate.com

Cameroon

The Telecommunications Regulatory Board (ART) has fined the country's four mobile network operators (MNOs) a total of XAF6 billion (USD9.8 million) for poor network quality. Business in Cameroon quotes head of the telecoms regulator Philemon Zo'o Zame as saying the penalties were imposed on the cellcos for repeated violations of the quality and coverage requirements outlined in their operating agreements. Orange Cameroon was handed the largest fine of XAF2.2 billion, followed by Viettel (Nexttel) with a penalty of XAF1.6 billion and MTN Cameroon with XAF1.4 billion, while state-owned CamTel (Blue) was fined XAF800 million. Last month the Ministry of Posts and Telecommunications called for an urgent meeting between mobile operators MTN, Orange, Viettel and CamTel and the ART to discuss measures to improve quality of service, following a surge in complaints from consumers in recent months over poor service quality and expensive tariffs. In February 2023 the regulator announced it would carry out an assessment of the performance of mobile networks and any operator found to fall short of these targets could face financial penalties or the withdrawal of their license.

(May 30, 2023) www.commsupdate.com

Canada

The Canadian Radio-television & Telecommunications Commission (CRTC) yesterday (9 May 2023) set the final rules giving regional mobile network operators MVNO-based access to the networks of Rogers, Bell, Telus and SaskTel ('the incumbents'), completing a policy decision issued over two years ago. The incumbents have been given 90 days to negotiate MVNO access agreements. In its latest Decision the CRTC approved with changes the incumbents' proposed MVNO access tariffs, effective 9 May 2023, and directed them to issue final tariffs by 19 May. Incumbents 'must have the service operational and ready for use' by 8 June, and by 7 August 'parties should have executed agreements' and 'seamless hand-off functionality must be in place'. If this timeframe is not met, the Commission will consider 'using all the tools at its disposal to ensure compliance with its framework'. The CRTC stated that the measures mean that regional competitors will be able to offer cellphone services in parts of Canada that they do not currently serve, giving mobile users greater choice. In April 2021 the CRTC granted conditional MVNO access to regional operators who have invested in infrastructure and spectrum, but stopped short of mandating wider MVNO access for other competitors or directly regulating wholesale rates for MVNOs. The regulator took an additional 18 months to set MVNO access terms and conditions, released in October 2022 – mandating the incumbents to enter negotiations with regional providers on wholesale rates – but it took more than a further six months for final rules to be issued. (May 10, 2023) www.commsupdate.com

Innovation, Science & Economic Development Canada (ISED) has issued a decision on a Non-Competitive Local (NCL) Licensing Framework for spectrum in the 3900MHz-3980MHz band and portions of the mmWave 26GHz, 28GHz and 38GHz bands. ISED declared that 'in addition to facilitating access to new and non-traditional users [NTUs], releasing this spectrum though an NCL licensing framework will support the development of 5G services by existing users, and can enable wireless broadband services (WBS) [licensees] and WISPs [wireless ISPs] to bolster connectivity in various regions across the country', including rural and remote areas. New and NTU spectrum users are expected to span a wide range of industry verticals and could include private broadband networks on enterprise campuses, such as universities, stadiums and shopping centers. ISED designated 80MHz of spectrum in eight unpaired 10MHz blocks for shared use in the 3900MHz-3980MHz range, with the 3940MHz-3980MHz portion reserved for small operators including small commercial mobile service providers, NTUs and WISPs; any entity with 100,000 or more retail mobile phone subscriptions is ineligible for licensing in that block. A spectrum limit of 20MHz per licensee within any geographic area will apply to 3900MHz spectrum, while ISED will implement license area size limits varied by license type, with specific base station deployment requirements per license. ISED is adopting an 'early access application window' allowing existing WBS licensees to apply for 3900MHz-3980MHz NCL licenses, giving them until 7 July 2023 to upload their site information into ISED's Spectrum Management System. ISED will issue early NCL licenses in the 3900MHz band 'prior to 31 March 2025, the first WBS displacement deadline', to those who have submitted payment for their license. For all other applicants, an automated NCL licensing system is expected to be made available in 2024. ISED has decided to prioritize the licensing of the 3900MHz band by making it available for NCL licensing ahead of mmWave band NCL licensing availability; further announcements on mmWave NCL licensing timing will follow. (May 5, 2023) www.commsupdate.com

Colombia

The Ministry of Information Technologies and Communications (Ministerio de Tecnologias de la Informacion y las Comunicaciones, MinTIC) has announced that the country's long-awaited 5G multi-band spectrum auction will commence on 20 December 2023.

The auction schedule is as follows:

- In August MinTIC will publish a resolution setting out the technical conditions, legal requirements for participation, and the auction mechanism.
- In September the reserve price, obligations and guarantees will be revealed.
- October will see the publication of the final version of the resolution.
- On 10 November (estimated) MinTIC will be open for applications from interested parties.
- Any corrections must be noted by 8 December (estimated).
- On 20 December the spectrum auction will officially commence.

While this week's announcement does not break down the spectrum bands that are scheduled to be included in the auction, MinTIC has previously indicated that it will distribute spectrum in the 700MHz, 1900MHz, 2.5GHz, 3.5GHz and 26GHz bands.

(Jun 15, 2023) www.commsupdate.com

Costa Rica

The Ministry of Science, Technology and Telecommunications (Ministerio de Ciencia, Tecnologia y Telecomunicaciones, MICITT) has formally instructed the Superintendency of Telecommunications (Superintendencia de Telecomunicaciones, Sutel) to initiate the country's 5G auction process. The decision was included in the Official Gazette on 2 May 2023, via Executive Agreement No. 031-2023-TEL-MICITT. Sutel is in charge of staging a public consultation, establishing eligible bidders and running the tender process. While the 5G auction will chiefly comprise spectrum in the 3.5GHz band, frequencies in the 2600MHz band may also be included. The auction is earmarked to take place in the second half of 2023. (May 5, 2023) www.commsupdate.com

Dominican Republic

The Dominican Telecommunications Institute (Instituto Dominicano de las Telecomunicaciones, Indotel) has announced plans to stage an auction of unused 700MHz frequencies. The tender will be launched in the coming months and the auction process is expected to conclude at the beginning of 2024. The 700MHz frequencies were originally included in 2021's 5G spectrum auction, alongside 3.5GHz airwaves, but failed to attract any bids. Nine 2×5MHz blocks of 700MHz spectrum were included in the original tender. Other, as-yet-unspecified spectrum blocks could also go under the hammer, with the watchdog noting: 'The administration … has focused on the reorganization of disused radio spectrum, so that it can be used to improve the coverage of the services offered by the providers in the national territory … In the same sense, they have taken concrete measures, such as the closure of more than 50 stations that were operating illegally, the recovery of idle spectrum and the cleaning up of radio communication bands.'

(May 24, 2023) www.commsupdate.com

Estonia

The Consumer Protection and Technical Regulatory Authority (Tarbijakaitse ja Tehnilise Jarelevalve Amet, TTJA) has announced that the three incumbent cellcos have won 5G licenses in the 26GHz (24.7GHz-27.1GHz) band. Each 400MHz license had a starting price of EUR800,000 (USD878,000). After a single round of bidding Elisa agreed to pay EUR1.626 million for two licenses while Telia bid EUR1.602 million and Tele2 offered EUR1.600 million. The three operators already have live 5G networks. 3.5GHz concessions were auctioned in a three-stage process in mid-2022, while the incumbents all won 700MHz licenses in November.

(May 11, 2023) www.commsupdate.com

Ethiopia

A consultation on proposed fees for communications licenses and annual usage fees for radio spectrum has been launched by the Ethiopian Communications Authority (ECA). Having published its proposed 'Communications Services and License Fee Directive,' the regulator has called for comments from stakeholders by a deadline of 15 June 2023. Among the notable proposals, with regards to spectrum usage the ECA has proposed annual fees ranging between USD3,935 per MHz per year for spectrum in the 3500MHz band and USD84,396 per MHz per year for 800MHz frequencies. Meanwhile, with regards to communications service license fees, proposed charges include: USD100,000 per year plus 1% of gross annual revenue in local currency for a ten-year 'Internet Service Provider License'; USD5,000 per year plus 0.5%

of annual gross revenue for a 'Virtual Internet Service (VISP) License'; and USD1,500 per year plus 0.5% of annual gross revenue for a 'Telecommunications Value Added Service License'. (May 30, 2023) www.telecompaper.com

Ethiopia will launch a tender for a new international telecoms license in June, said Balcha Reba, Director General of the Ethiopian Communication Authority (ECA). 'We have planned to launch the tender in June. More details will be released when we approach the launch date,' Reba informed the news agency via a text message. In May 2021 Ethiopia's Ministry of Finance (MoF) and the ECA named Global Partnership for Ethiopia (GPE), a private consortium comprising Safaricom, Vodafone Group, Vodacom Group, CDC Group and Sumitomo Corporation, as the winning bidder for one of two nationwide concessions that it had put up for grabs. The process to issue a second license was initiated on 28 September 2021, but suspended on 22 December 2021. Newcomer Safaricom Ethiopia went on to stage a full commercial launch in October 2022, breaking Ethio Telecom's monopoly on the sector. Running in parallel, in November 2022 the MoF issued an EoI for the partial privatization of Ethio Telecom.
(May 23, 2023) reuters.com

Finland

The Ministry of Transport and Communications (Liikenne- ja viestintaministerio, MoTC) has called for comments from interested parties on matters to be considered in its review of the license terms for 2G networks. Specifically, the Ministry has requested views on whether the Ts&Cs should continue to oblige operators to maintain their 2G infrastructure; currently the concessions held by DNA, Elisa and Telia Finland for 900MHz and 1800MHz spectrum require that 2G networks cover 99% of the population in mainland Finland. A deadline of 31 July 2023 has been set for submissions. (June 3, 2023) www. lvm.fi

France

The telecoms regulator Arcep has revealed the results of its main auction for spectrum in the 3.4GHz-3.8GHz bands in the French overseas territory (departement d'outre-mer, DOM) of French Guiana and the French overseas collectivities (collectivites d'outre-mer, or COMs) of Saint Barthelemy and Saint-Martin. Regarding French Guiana, a total of four blocks with predetermined positions were available for allocation: Block 1 (50MHz), Blocks 2 and 3 (60MHz) and Block 4 (70MHz). Free Mobile won Block 1 (3480MHz-3530MHz) for EUR0, while Digicel secured Block 2 (3530MHz-3590MHz) for EUR10,082 (USD10,832). Orange walked away with Block 3 (3670MHz-3730MHz) for EUR10,000, while SFR agreed to pay EUR710,114 for Block 4 (3730MHz-3800MHz). Regarding Saint-Barthelemy and Saint-Martin, the regulator will award a total of 100MHz of 3.4GHz-3.8GHz spectrum each to Dauphin Telecom, Digicel and Orange, while Free will receive 80MHz in the band. The firms will be awarded 50MHz (30MHz for Free) initially as part of the main allocation procedure, with an additional 50MHz to be distributed to each operator against certain commitments. Arcep is now scheduled to hold a second 'positioning' auction to determine the final allocations in the two COMs. (Jun 9, 2023) www.commsupdate.com

The telecoms regulator Arcep has informed the public that it is currently examining three amendments to the January 2014 network sharing agreement between Bouygues Telecom and SFR, inviting all interested parties to submit their comments by 26 May 2023. The amendments – which comprise the expansion of the existing network sharing deal to include 5G and a new increase in shared network density with the addition of new cell sites – were submitted for approval to the regulator in January 2023. The original deal was inked in January 2014 for a period of 20 years and initially pertained to 2G/3G/4G networks over a large portion of Metropolitan France, with a temporary 4G roaming solution. Bouygues Telecom and SFR amended their agreement in 2016 to include a trajectory for gradually phasing out 4G roaming by the end of 2018.
(May 9, 2023) www.rcrwireless.com

Ghana

The Ministry of Transport and Communications (Liikenne- ja viestintaministerio, MoTC) has called for comments from interested parties on matters to be considered in its review of the license terms for 2G networks. Specifically, the Ministry has requested views on whether the Ts&Cs should continue to oblige operators to maintain their 2G infrastructure; currently the concessions held by DNA, Elisa and Telia Finland for 900MHz and 1800MHz spectrum require that 2G networks cover 99% of the population in mainland Finland. A deadline of 31 July 2023 has been set for submissions. (June 3, 2023) www. lvm.fi

Guatemala

Tigo Guatemala successfully bid on the largest amount of 2.5GHz-2.6GHz spectrum in the frequency sale held by the Superintendence of Telecommunications (Superintendencia de Telecomunicaciones, SIT) on Friday 2 June. According to TeleSemana, the auction raised a total of USD48.947 million, of which 75% will be allocated towards connectivity projects. A total of 126MHz of spectrum went under the hammer, comprising frequencies in the 2500MHz-2550MHz and 2604MHz-2680MHz bands. As per the report, Tigo paid a total of USD32.236 million to acquire the rights to the spectrum in Blocks B to H, while Tigo's sole mobile rival, Claro Guatemala, paid USD16.711 million for the spectrum included in Blocks A and A´.

(June 5, 2023) www.telecompaper.com

The Superintendence of Telecommunications (Superintendencia de Telecomunicaciones, SIT) will stage an auction of unused frequencies in the 2.5GHz-2.6GHz range on 2 June. Interested parties have until 19 May to register their interest in joining the bidding process. The process is expected to generate between USD30 million and USD50 million, and 75% of the proceeds will be allocated towards connectivity projects. The SIT first disclosed plans to auction the spectrum in September 2022, after receiving a number of requests from local mobile operators Claro and Tigo. At that time Comunicaciones Celulares (as Claro is legally known) applied for 34 of the 48 available regional spectrum blocks, while Telecomunicaciones de Guatemala (Tigo) applied for just five blocks, with a focus on larger spectrum allocations.

(May 10, 2023) www.commsupdate.com

Hong Kong

The Communications Authority (CA) laid out plans to reassign a total of 110MHz of 4G and 5G spectrum across two bands by holding an auction in 2024. In a statement, CA explained current assignments of 20MHz of spectrum in the 850MHz to 900MHz band, and 90MHz in the 2.3GHz band are set to expire in May 2026 and March 2027, respectively. It plans a "market-based approach" for reassignment. The 20MHz in the 850MHz to 900MHz band will be divided into two paired frequency blocks of 2x5MHz each. A spectrum cap of 10MHz will be imposed. The 90MHz of 2.3GHz spectrum will be split into nine 10MHz blocks, with a 50MHz spectrum cap. All blocks have 15-year terms. CA noted spectrum will be auctioned together in a simultaneous multiple round ascending format. The sale is open to incumbent MNOs and new entrants. The spectrum utilization fee (SUF) will be determined by auction, with reserve prices to be specified nearer the time of the auction. Spectrum assignees will have a choice to pay the SUF upfront or through 15 annual instalments, with 2.5 per cent interest added each year. Assignees will be required to provide a minimum coverage of 90 per cent of the population within five years. Details of the reassignment were determined following a public consultation conducted between November 2022 and January 2023. Hong Kong's last spectrum action was held in October 2021 and generated HKD1.9 billion ($242 million) from the sale of 255MHz of spectrum across four bands.

(May 3, 2023) www.mobileworldlive.com

Hungary

The National Media & Infocommunications Authority (Nemzeti Media- es Hirkozlesi Hatosag, NMHH) has announced the results of the auction of spectrum licenses in the 32GHz frequency band, with all three participating companies – Magyar Telekom, Vodafone Hungary and CETIN Hungary – winning 15-year concessions with total bids of HUF970 million (USD2.79 million). Bidding closed on 23 May, after initial offers were submitted on 13 March and second-round bidding opened on 25 April. Of the 24 duplex lots (each 2×28MHz) of frequencies offered by the NMHH, 18 lots were awarded in contiguous blocks as follows: Vodafone won ten lots (2×280MHz, or total spectrum of 560MHz); Magyar Telekom successfully bid for six lots (2×168MHz, total 336MHz); and CETIN acquired two lots (2×56MHz, total 112MHz). Note that CETIN is the infrastructure-owning sister company of Yettel Hungary; the Yettel fights closely for second place with Vodafone in the Hungarian mobile network operator market in terms of subscriptions, behind clear leader Magyar Telekom. The NMHH has underlined that the allocation of the currently-unused 32GHz spectrum contributes to the scheduled clearance of the 26GHz band – currently used for carrier network services – and the subsequent reallocation of 26GHz frequencies for 5G purposes. The 26GHz mmWave spectrum band has increasingly featured in the 5G license auction strategies of countries worldwide.

(May 26, 2023) www.mobileworldlive.com

India

India's Department of Telecommunications (DoT) is planning to seek approval from the Committee of Secretaries (CoS) regarding the inclusion of a number of unused spectrum bands in its next 5G spectrum auction. A DoT official with knowledge of the matter told the Economic Times that the DoT is keen to incorporate the 3.7GHz-4.2GHz band, the L-band (1427MHz-1518MHz), the 470MHz-582MHz band and 37GHz millimeter wave (mmWave) frequencies in its planned spectrum sale. 'The mid-band is ideal for 5G services and in the last sale, the spectrum in the 3.3GHz [band] was bought by all three telcos,' a DoT official said on condition of anonymity. As per reports last month, India's next spectrum auction is earmarked to take place in January/February 2024. The process will coincide with the expiration of certain Bharti Airtel and Vodafone Idea (Vi) licenses in circles such as West Bengal, Assam, Bihar and Odisha. The country's previous multi-band spectrum auction took place in the summer of 2022. Reliance Jio Infocomm (Jio), Bharti Airtel, Vi and Adani Data Networks spent a total of INR1.5 trillion (USD18.97 billion) on frequencies in the 700MHz, 800MHz, 1800MHz, 2100MHz, 3.5GHz and 26GHz bands. (Jun 7, 2023) www.commsupdate.com

Sector watchdog the Telecom Regulatory Authority of India (TRAI) has published its recommendation on the methodology of applying Spectrum Usage Charges (SUC) in cases of spectrum sharing. The Department of Telecommunications (DoT) had asked the TRAI to reconsider its position that an incremental SUC of 0.5% should be levied only on the specific spectrum band being shared. The DoT's view is that the 0.5% increment should be applied to the weighted average rate of SUC, based on a cellco's entire spectrum holdings. In its response to the DoT, the TRAI maintained its position, referring back to arguments it had made previously, notably that if the DoT's interpretation is used 'the cost of spectrum sharing could surpass the benefits achieved by the TSPs'. The TRAI added that there is 'no rationale' for incrementing the weighted average SUC. (May 3, 2023) www.commsupdate.com

Indonesia

The Ministry of Communication and Informatics (MCI, aka KemKominfo) has reviewed a joint application submitted by two of Indonesia's mobile network operators (MNOs), Telkomsel (Telekomunikasi Selular) and Smart Telecom (Smartfren), allowing for the transfer of certain frequencies in the 2.3GHz radio frequency band from the former to the latter. The Minister of Communication and Informatics, Johnny G Plate, reportedly approved the transfer last week after evaluating the application. 'According to regulations, it is possible for telecommunications network operators holding Radio Frequency Band Permits (IPFR) to transfer the right to use radio frequency spectrum to other telecommunications network operators,' said Director of Resources Management at the Directorate General of Resources and Equipment of Post and Information Technology of the Ministry of Communication and Informatics, Denny Setiawan. 'Following up on the provisions in Article 57 of Government Regulation Number 46 of 2021 concerning Post, Telecommunications and Broadcasting, a thorough evaluation has been carried out in accordance with the provisions stipulated in the said Government Regulation as well as a number of provisions contained in the Minister of Communication and Information Regulation Number 7 of 2021 regarding the Use of the Radio Frequency Spectrum,' he explained, adding that on the basis of the outcome of the review KemKominfo had approved the transfer of Telkomsel's part of the rights to use the radio frequency spectrum in the 2.3GHz radio frequency band to Smartfren (effective 18 April 2023). The official noted that in approving the joint application, KemKominfo has optimized the 2.3GHz band 'because the width of the bandwidth becomes uniform nationally in all service areas for both cellular MNOs using radio frequency band 2.3GHz referred to'.

(May 3, 2023) www.commsupdate.com

Ireland

The Commission for Communications Regulation (ComReg) has published its 'Quarterly Key Data Report' for the three months ended 31 March 2023. Among the main findings in the report, the watchdog highlighted the continuing trend towards fiber-based fixed broadband services, noting that 'for the first-time fiber-to-the-premises (FTTP) is now the most commonly purchased broadband technology in Ireland'. With fixed broadband subscriptions having increased by 1.9% year-on-year, to 1.618 million as of 31 March 2023, ComReg reported that FTTP-based subscriptions represented over a third of that total – 537,244, up 34.8% y-o-y. By comparison, VDSL-based fixed broadband subscriptions declined by 4.3% to 513,916, while subscriptions using xDSL technology fell by 6.6%, to 109,457. Alongside the uptick in fiber-based subscriptions, the regulator noted a continued increase in the number of subscriptions signed up to a higher speed service. According to its data, just over 59% of all fixed broadband subscriptions in the country were for a service offering downlink speeds of 100Mbps or greater at the end of Q1 2023, up from 51.6% a year earlier, while 34.2% of subscriptions were for a 500Mbps or faster service (1Q22: 22.2%).

(Jun 16, 2023) www.commsupdate.com

Italy

Italy's Industry Ministry is studying a set of measures worth around 1.5 billion euros ($1.65 billion) to support battered domestic telecoms firms, a draft decree seen by Reuters showed. Italy's telecoms sector has been grappling with cut-throat price competition which has put margins under pressure in recent years, dampening its ability to fund investments needed to upgrade their infrastructure. Under the draft, details of which were not previously fully disclosed, the ministry proposes to cut levies weighing on energy bills paid by firms deemed by the state to be of strategic importance, including telcos, for three years until 2025. (May 19, 2023) www.reuters.com

Macau

Macau's Post and Telecommunications Bureau (CTT) says that more than 20% of the territory's population are now using 5G mobile services, six months after their launch. The first 5G network was switched on by Companhia de Telecomunicacoes de Macau (CTM) in November, followed by China Telecom Macau two months later. The territory's two other mobile operators, Hutchison 3 and SmarTone, did not acquire 5G licenses when they were made available last year. CTM said that at launch its entire mobile network was 5G-capable.

(May 19, 2023) www.macaudailytimes.com

Malaysia

The Malaysian Communications and Multimedia Commission (MCMC) claims to have exceeded the initial targets set out under the action plan of the first phase of the Jalinan Digital Negara (JENDELA) program. According to the MCMC the first phase achieved: the passing of 7.74 million premises with gigabit speed broadband connectivity, compared to a target of 7.5 million; the extension of 4G coverage to 96.92% of populated areas, broadly in line with the target of 96.90%; boosting average mobile broadband speeds to 116Mbps, against a target of 35Mbps; and the provision of fixed wireless broadband via satellite connectivity to 839 locations. Looking ahead, a second phase of the JENDELA program is now expected to get underway later this year and will focus on extending access to broadband service for the remaining 3% of the population not currently covered. In addition, the next phase will look to extend gigabit access for fixed broadband to a total of nine million premises nationwide. Meanwhile, at a press briefing regarding the end of the first phase of the JENDELA program, the MCMC's COO Dato' Mohd Ali Hanafiah Mohd Yunus revealed that 5G uptake remains relatively low, despite coverage having now reached 59.5% for the network being rolled out by Digital Nasional Berhad (DNB). According to statements made by the executive, there are currently around 1.2 million 5G subscriptions in Malaysia, translating to an adoption rate of around 3.1%.

(June 2, 2023) www.mcmc.gov.my

The government has confirmed that it is to allow the deployment of a second 5G network in the country from next year, subject to Digital Nasional Berhad (DNB) – the company currently tasked with the rollout of the technology – achieving 80% population coverage. In a statement confirming the government's plans, Communications Minister Fahmi Fadzil was cited as saying: 'This model also takes into account the sustainability of the telecommunications industry ecosystem in Malaysia thus ending the monopoly element that is often associated with DNB.' Response to the development has been largely positive from local cellcos, with CelcomDigi – the enlarged entity formed following last year's merger of Celcom Axiata and Digi Telecommunications – issuing a press release welcoming the decision, given 'the opportunity [it provides] to play a more active and direct role in the country's 5G implementation'. A similar statement was issued by Maxis, which remains the only one of the country's incumbent cellcos yet to begin providing 5G services via DNB's network. The company said it was 'committed to working closely with the industry to accelerate 5G for the nation in line with the Government's digital ambitions', adding that when the second 5G network is rolled out it 'looks forward to playing a more direct role in the country's 5G implementation leveraging its expertise, resources and existing infrastructure'. For its part, U Mobile said it '[shared] the belief that the upcoming shift in 5G network model would increase efficiencies and also encourage greater adoption for both consumers and enterprises'. In a related development, meanwhile, Celcom and Digi Telecommunications have terminated their respective share subscription agreement (SSA) with DNB, effective 3 May 2023. According to a filing lodged with Bursa Malaysia by CelcomDigi, the termination was made 'as the long stop date to fulfil all the conditions precedent under the SSA has lapsed'. (May 4, 2023) www.commsupdate.com

Mexico

America Movil (AM)-backed Telcel could be the only Mexican cellco to participate in the government's planned multi-band 5G spectrum auction. Despite expressing misgivings about the high cost of the frequencies, Alejandro Cantu, the group's Director of Legal and Regulatory Affairs, told the publication: 'We already have 5G spectrum and we will always be evaluating the tenders called by the regulator.' The report indicates that both AT&T and Movistar will sit out the process. While a date for the auction has not yet been set, the main 5G spectrum bands scheduled for inclusion are 70MHz in the 614MHz-698MHz (600MHz) band, a 50MHz block at 3300MHz-3350MHz and 90MHz in the L-band (1427MHz-1518MHz).

(Jun 7, 2023) El Economista

Mozambique

The Minister of Transport and Communications has warned that state-backed Mocambique Telecom (Tmcel) risks collapse if urgent action is not taken to shore up its business. Lusa cites Mateus Magala as saying that the fixed and mobile operator 'has lost the capacity to honor its commitments, including not paying salaries to its many workers, and has an overall accumulated debt of over USD400 million, with a tendency to worsen'. A government study has advised the sale of over 80% of Tmcel's assets, the reduction of its workforce and the assumption of debt by the state, with a view to attracting a strategic partner to help with the company's recovery. In April this year the day-to-day running of Tmcel was transferred to its 90% shareholder, state asset management agency Instituto de Gestao das Participacoes do Estado (IGEPE).

(May 12, 2023) www.datacenterdynamics.com

Namibia

The Communications Regulatory Authority of Namibia (CRAN) has revealed plans to auction 5G-suitable 3.5GHz spectrum licenses on 1 October. The watchdog will publish its bidding documents on 1 August. The site quotes the CRAN as saying: 'We are pleased to inform stakeholders of our intention to release spectrum for the implementation of IMT-2020 services on 1 October 2023, through an auction process … To ensure transparency and gather feedback from stakeholders, CRAN will be releasing the bid document on 1 August 2023, allowing interested parties to provide their comments.' (Jun 16, 2023) The Brief

New Zealand

The New Zealand government has signed an agreement with the country's three major mobile network operators (MNOs) – Spark, 2degrees and One New Zealand – for a direct allocation of C-band mobile spectrum under a new model where the revenue is directly invested into accelerated mobile network upgrades for provincial and rural areas of the country. The three MNOs will each receive 80MHz of spectrum in the 3.5GHz band, which the government considers sufficient for the operation of nationwide 5G networks, with the long-term management rights taking effect from 1 July 2023, when the short-term rights extended in October 2022 come to an end. The Interim Maori Spectrum Commission, meanwhile, will be assigned 100MHz of frequencies which it will manage on behalf of the Maori community. Dense Air New Zealand, a current interim holder of 3.5GHz spectrum rights and which had previously been in negotiations with the government for long-term rights in the band, has since decided to withdraw from the process. In return for the allocated spectrum, Spark, 2degrees and One New Zealand will each pay the government NZD24 million (USD15.2 million), which will be allocated to the Rural Connectivity Group (RCG) to support the expansion of mobile coverage further into rural New Zealand and address mobile black spots on state highways. This funding is additional to the value of the works required to provide 5G to towns. The agreement builds on other government investment, including the NZD60 million allocated through Budget 2022 for rural connectivity improvements, as well as the NZD47 million of rural capacity upgrades that commenced in February 2022. Commenting on the agreement, Digital Economy and Communications Minister Ginny Andersen said: 'As part of this new agreement, our three major mobile network operators must increase the pace of the 5G rollout to small towns across New Zealand and to continue their efforts to further expand mobile wireless coverage in rural areas. This deal is a huge step forward for rural New Zealand when it comes to connectivity. By working together with our telecommunications operators more Kiwis will have access to faster wireless mobile services.' (May 12, 2023) www.datacenterdynamics.com

Nigeria

The Nigerian Communications Commission (NCC), Nigeria's telecommunications regulatory body has granted licenses to 25 companies to provide mobile telecommunications services under the Mobile Virtual Network Operator (MVNO) framework. This is coming after almost two years the regulator first spoke about the plan to license MVNOs. A Mobile Virtual Network Operator (MVNO) is a telecommunications service provider that does not own its own physical network infrastructure but instead leases network services from an existing mobile network operator (MNO). MVNOs typically enter into agreements with MNOs to access their network infrastructure, including voice, data, and messaging services. MVNOs operate as independent entities and can offer their own branded mobile services to customers. They have the flexibility to define their pricing, service plans, and value-added features. MVNOs cater to specific market segments or niche markets, targeting different customer needs and preferences. By leveraging the infrastructure of established MNOs, MVNOs can enter the mobile market without the substantial investment required to build and maintain their own network infrastructure. This allows MVNOs to focus on delivering unique services, customer experience, and competitive pricing. These 25 new MVNOs will provide the same telecom services like the incumbents, MTN, Airtel, Glo and 9Mobile and NCC expects that they would help to drive the government's efforts to extend telecom services to more rural, under-served, and unserved communities across the country. According to an online report, telecom regulators have established various categories of licenses within the MVNO framework. These categories range from tier 1 to tier 5. However, among the 25 companies that have been licensed so far, none have obtained a tier 1 license, which is the lowest category. As per the records in the NCC's database, 7 companies have been licensed in the tier 2 category. These companies are Routelink Integrated Systems Ltd, Hazon Technologies Limited, Asel Telecom Nigeria Limited, Briclinks Africa Plc, Pisi Mobile Services Limited, Univasa Nigeria Limited, and Imose Technologies Limited. In the tier 3 category, there are also 7 licensed companies. They are Amics Technologies Limited, Zegtel Limited, Telewyz Limited, Siu Telecommunications Network, Abrindex Nigeria Limited, Metropolitan Consortium Nigeria Ltd, and IPNX Nigeria Limited. The tier 4 operators consist of Imbil Telecoms Solutions Nig. Ltd, Environmental Expressions Limited, and DMK Telecommunication Nig. Ltd. Lastly, the tier 5 category includes 8 licensed companies: Systegra Technologies Limited, Choffan Communications Limited, Mab Consultant and Associates Ltd, H & Y Business Global Limited, Taima Technologies Ltd, Global Communication Extension Services Ltd, USKS Ventures International Ltd, and Paribas Communication Limited. NCC has raked in about N5.9 billion as licensing fees from the issuance of the MNVO license to the 25 companies.

(Jun 8, 2023) www.innovation-village.com

Norway

The National Communications Authority (Nasjonal kommunikasjonsmyndighet, Nkom) has begun consulting on its market analysis of the country's fixed broadband sector, and pointed to what it terms are 'clear challenges with low competition and little opportunity for customers to choose their own broadband provider'. Specifically, Nkom highlighted the impact of fixed line incumbent "Telenor Norge's recent copper network closure and how that has led to differences in the competitive situation in different parts of the country. According to the regulator, as a result of the copper shutdown it has moved from viewing Norway as a single national market, to one comprising 22 regional markets. In its analysis Nkom found that in twelve of the markets there was an operator in the region with a strong market position. Nine companies were named as having a competitive advantage across those twelve areas, those being: Telenor Norge (in the coastal municipalities in Vestfold and Telemark, the coast from Kragero to Kristiansand, the Bergen area, the coast of Trondelag); Viken Fiber (Drammen); Eidsiva Bredband (Inland); Altifiber (Indre Agder and Dalane); Lyse Fiber (Stavanger); Haugaland Kraft Fiber (Sunnhordland and Haugalandet); Enivest (Sunnfjord and Nordfjord); NTE Telekom (northern part of Trondelag); and Signal Bredband (southern and central part of Nordland). These providers have been notified that they are to be designated as providers holding a strong market position, which in turn will mean being subject to wholesale access obligations.

(Jun 16, 2023) www.commsupdate.com

A total of 2.4 million households now have access to broadband at downlink speeds of 100Mbps, Norway's National Communications Authority (Nasjonal kommunikasjonsmyndighet, Nkom) has reported. With the watchdog's previous coverage survey, "published in September 2022having stated that 93.6% of the population had access to 100Mbps downlink speeds, the latest study puts coverage at around 96%. However, Nkom highlighted that despite the continued increase in access to faster speeds, a number of private broadband subscriptions remain on lower-speed services, with only 77% of around 2.3 million private broadband subscriptions being on a tariff offering downlink speeds of 100Mbps or higher, at the time of the study, with regards to that level of take-up, Nkom director Pal Wien Espen was cited as saying: 'We know that households have different compositions and different needs. In addition, we see that more and more people are buying mobile subscriptions with larger data quotas, so more people are probably using this as an alternative to a fixed internet connection. But this is clearly an area we need more knowledge about.' (May 26, 2023) www.telecomtalk.info

Peru

Vietnam's Viettel was the winner of Peru's 4G spectrum auction. Investment promotion agency ProInversión offered two blocks of 15MHz each in the AWS-3 band and one 30MHz block in the 2.3GHz band. Viettel was awarded blocks A and B of the AWS-3 band with a total of 44,241 points, more than 10,000 points above competitor Claro. It was also awarded the spectrum in the 2.3GHz band with a score of 18,955. Each award is for 20 years. Telefónica did not take part in the auction. The auction was not based on revenue but on investment commitments, which are expected to amount to more than US$600mn, according to ProInversión. Points considered coverage and areas difficult to reach with mobile connectivity, among other factors. As a result of the contest, 3,825 rural areas will have 4G mobile services, of which 3,282 are due have the services in the first year of the concession contract and 543 in the second year. In addition to Viettel and América Móvil's Claro, Entel submitted bids. Claro came second in bidding for the AWS-3 spectrum while Entel came second in the case of 2.3GHz. Telefónica had already announced that it would not participate in the auction. "We are not going to participate because the cost of the obligations in Peru was well above the international cost and did not justify participating," Miguel Calderón, the company's director of strategy and public policy, told BNamericas recently. The company had pre-qualified for the tender. Spain's Telefónica is the main operator in Peru with 30.05% of mobile customers, according to the latest figures from regulator Osiptel. It is followed by Claro with 29.74% of users and Entel with 23.04%. Viettel is the fourth operator with 16.7% of the mobile market, the figures show. Last year, the same tender had to be suspended due to concern among interested companies about investment and rural coverage commitments. (June 13, 2023) www.bnamericas.com

The Ministry of Transport and Communications (Ministerio de Transportes y Comunicaciones, MTC) has passed a decree establishing 'exceptional measures' to guarantee the continuity of the operation of the National Fiber Optic Backbone (Red Dorsal Nacional de Fibra Optica, RDNFO). The decree authorizes the MTC, operating through the National Telecommunications Program (Programa Nacional de Telecomunicaciones, Pronatel), to continue with procedures to ensure the continued operation of the RDNFO including issuing contracts to specialized operators to oversee provision of service until the system can be transferred on a permanent basis. The MTC noted that it has started the process of hiring a company to temporarily manage the network whilst Pronatel has launched a study on the potential options for selecting a company to manage the network on long-term basis.

(May 30, 2023) www.telecompaper.com

Poland

A report from Poland says the government is set to announce the start of the long-awaited auction of 5G-capable 3.5GHz licenses in the next few weeks. The Office of Electronic Communications (Urzad Komunikacji Elektronicznej, UKE) will soon invite applications for four concessions, with spectrum now expected to be allocated in the fourth quarter, missing the original August deadline. Following an initial public consultation in December 2022, last month UKE kicked off a second consultation process, having increased the spectrum offered by each license from 80MHz to 100MHz while keeping the reserve price for each block at PLN450 million (USD108 million). At the same time, network coverage obligations were reduced. The lack of 3.5GHz licenses has not stopped Polish cellcos launching 5G. Orange, Play, T-Mobile and Plus all switched on commercial networks between May and July 2020, using their existing spectrum holdings in the 2100MHz and 2600MHz bands. Among EU countries, only Poland and the Netherlands have failed to award 3.5GHz concessions to support 5G.

(May 25, 2023) Puls Biznesu

Senegal

The telecommunications regulator (L'Autorite de Regulation des Telecommunications et des Postes, or ARTP) has issued a call for applications for 5G licenses. The call is the regulator keeping its promise to launch commercial ultra-broadband in the country in 2023, furthermore, requesting that interested investors must submit their applications by July 14, 2023. In May 2023, the regulator announced that it would allocate 5G licenses to telecom operators by the end of July. "Only companies incorporated under local law can apply and they should also have a valid license authorizing them to establish and operate a network open to the public and to provide electronic communications services as of the application submission date," the regulator said in a statement. The country's 5G launch is in line with the country's drive to strengthen high-speed connectivity and digital use in the country. This is also linked to the Digital Economy Acceleration Project (PAEN), which the World Bank is funding for US$150 million.

(June 2, 2023) www.connectingafrica.com

Serbia

Serbia's updated Law on Electronic Communications has entered into force, updating the country's legislation so that it aligns with the EU's Electronic Communications Code. The law also adjusted the name of the sector watchdog from the Regulatory Agency for Electronic Communications and Postal Services (Regulatorna agencija za elektronske komunikacije i postanske usluge, RATEL) to the Regulatory Authority for Communications and Postal Services (Regulatorno telo za elektronske komunikacije i postanske usluge). RATEL noted that the updated legislation provides for the development of electronic communications networks across the entirety of the country and incentivizes the deployment and use of new network technologies.

(May 10, 2023) www.ratel.rs

South Africa

The Independent Communications Authority of South Africa (Icasa) intends to publish a request for proposals to appoint a consultant to assist with the licensing process for International Mobile Telecommunications (IMT) Radio Frequency Spectrum, including conducting an auction in multiple IMT-identified bands. The IMT Spectrum auction is expected to be completed in 2024. The amended Radio Frequency Spectrum Regulations prescribe the market-based approach to efficient spectrum management, which includes using an auction process for the licensing of the spectrum in respect of which demand exceeds supply. 'This important process seeks to ensure universal availability of broadband services, a robust and competitive telecommunications industry, as well as promote investment in the country. As a result, it is vital to ensure a fair auction process by appointing a suitable consultant to assist with the licensing process,' said councilor Peter Zimri, chairperson of the committee. The licensing process is availing spectrum resources on the following identified IMT spectrum bands: IMT750, IMT800, IMT1500, IMT2300, IMT3300, and IMT3500. The Radio Frequency Spectrum Assignment Plans for these IMT Spectrum bands were published in the relevant Government Gazettes.

(June 12, 2023) www.bizcommunity.com

South Korea

The Ministry of Science and ICT (MSIT) has confirmed that, having conducted a performance check relating to SK Telecom's (SKT's) utilization of 28GHz frequencies for 5G connectivity, it plans to cancel the cellco's concession. Having previously cancelled KT and LG Uplus' 28GHz licenses back in November 2022 after the pair fell short of meeting requirements in their licenses, the regulator at that date gave SKT a temporary reprieve, saying its license would remain valid until 31 May 2023. Now, however, it said it had reviewed SKT's performance as it relates to the use of 28GHz spectrum and had found the operator had rolled out just 1,650 base stations operating in the band, of a required 15,000. Given that SKT has confirmed that it has no plans for further deployments, the MSIT has therefore given it advance notice of its intention to cancel its license at the end of this month.

(May 12, 2023) www. telecoms.com

Spain

Telecoms regulator the National Commission for Markets and Competition (CNMC) has updated its so-called 'MARCo offer' making it easier for alternative operators to access Telefonica's infrastructure to launch their own new generation fiber services. The watchdog's new offer improves the regulation of access to Telefonica's civil works infrastructures, including conduits, registers, manholes and poles, important for the deployment of new fiber-optic networks. Cinco Dias notes that in one important update, the CNMC has introduced an improvement in the notification process for scheduling (e.g. due to works by a Town Hall). Thanks to the amendment, Telefonica is required to provide more information to altnets and to do so in a timely manner – something that had been lacking until now, causing delays in actioning their plans.

(Jun 13, 2023) www.commsupdate.com

The Ministry of Economic Affairs and Digital Transformation (Ministerio de Asuntos Economicos y Transformacion Digital) has launched a public consultation regarding the extension of the country's existing mobile licenses. As per the General Telecommunications Law (dated 28 June 2022), the duration of existing concessions can be extended to a total term of 40 years. The regulator notes that the proposed license extension offers greater stability and helps the licensees when planning their network investments.

(May 22, 2023) www.commsupdate.com

Sweden

The telecoms regulator, the Post and Telecom Agency (Post & Telestyrelsen, PTS), is seeking views on a draft analysis of the market for local access to fiber-optic networks ('market 1'). The watchdog has found that the market can be sub-divided into two segments – one for multi-family buildings and another for single-family dwellings. It adds that in the market for fiber access to multi-family buildings, competition generally works 'satisfactorily' and there is no need to impose further regulations. In the single-family dwelling market, however, there are 'often challenges when it comes to competition' and 'the imposition of obligations is justified'. PTS says it has not yet investigated which network owners have significant market power (SMP), or which obligations may be relevant, and is seeking opinions on the draft market analysis by 23 September prior to any further action. In February 2020 the EC rejected a move by the watchdog to implement a single national market regulation for wholesale local access to fiber-optic services, saying competitive conditions were not 'sufficiently homogeneous across the entire country to conclude on one, national market'.

(June 12, 2023) www.commsupdate.com

Switzerland

The Federal Communications Commission (ComCom) has re-awarded the universal service license to state-owned telco Swisscom for the period from 2024-2031. In a statement, ComCom noted that it had conducted a survey of the largest providers in the market that were capable of delivering universal service and found that Swisscom was the only operator interested in fulfilling the role. As such, a tender for the license could not be held under competitive conditions, in which case ComCom is authorized to simply designate the universal service provider. The government updated the requirements of the universal service provision, with effect from the start of the new licensing period in 2024. Under the updated obligations, universal service customers must be provided with internet connections with download/upload speeds of at least 80Mbps/8Mbps, up from their current 10Mbps/1Mbps. Regarding the universal service requirements, ComCom also clarified that the universal service condition is considered fulfilled if an equivalent solution is already available on the market at a given location, and the licensee is not required to offer the 80Mbps/8Mbps universal service option. Similarly, universal service is delivered on a technology neutral basis, enabling Swisscom to provide the service via mobile or satellite solutions if necessary.

(May 16, 2023) www. telecomtalk.info

Tanzania

The government, with support from the World Bank, has embarked on a project known as Digital Tanzania in partnership with mobile network operators, with a view to achieving 80% broadband penetration by 2025. As part of the project, mobile data services will be extended to 713 wards, which encompasses 1,407 villages, benefitting over 8.5 million Tanzanians across the country. The project is expected to cost around TZS265.3 billion (USD112 million) and will be implemented under the Universal Communication Services Access Fund (UCSAF). Mobile operators will be responsible for deploying a total of 758 mobile towers in underserved areas between them, with market leader Vodacom stating that it has been allocated 190 wards through the Digital Tanzania partnership, covering approximately 4.1 million people. 'Today we have witnessed a historic event that will see all 26 regions across Tanzania's mainland reached with quality and reliable telecommunication services compared to Zanzibar which was wholly covered in November 2022,' stated Tanzania's President Samia Suluhu Hassan, adding: 'The presence of services is of great significance not only in rural areas but also in town areas as it accelerates development and inclusion politically, socially, and economically as well as for the safety and security of the nation. The implementation of this project is in line with the government's commitment to improve telecommunication services and facilitate youth with opportunities in the ICT sector.'

(May 16, 2023) www. thefintechtimes.com

Togo

The telecom regulator has warned the country's two operators that they will face penalties if they don't improve quality of services to their customers. This week, regulator ARCEP (Autorité de Régulation des Communications Electroniques et des Postes) said that Moov Africa Togo and Togo Cellulaire (also known as Togocom) were not meeting regulatory compliance thresholds for mobile services. Moov Africa Togo is part of Maroc Telecom Group and Togo Cellulaire is majority owned by Axian Group. From November 2022 to January 2023, ARCEP carried out a national campaign to measure the quality of mobile services – for voice and Internet – which revealed a non-compliance rate of 63% for Moov Africa Togo and 51.4% for Togo Cellulaire. "Faced with these serious and continuous violations combined with the weak improvement in the quality

of service observed over the last eighteen months of around 5% for Moov Africa Togo and 8% for Togo Cellulaire, the General Management of ARCEP opened a sanction procedure on March 14, 2023 against Moov Africa Togo and Togo Cellulaire," the regulator said in a statement. After considering the investigation report, the ARCEP Management Committee on May 31, 2023, decided to give formal notice to both operators and granted them six months to make investments and implement the necessary corrective actions to improve service quality or face "penalty of sanction."

(June 2, 2023) www.connectingafrica.com

Uganda

The Uganda Communication Commission (UCC) has invited applications for its planned sale of 5G spectrum, which it hopes to complete by mid-August. Spectrum is being offered in the 700MHz, 800MHz, 2.3GHz, 2.6GHz, 3.3GHz, 3.5GHz, 5GHz and E-band (71GHz-76GHz, 81GHz-86GHz) ranges. The sale is open to both National Telecom Operator (NTO) licensees and Regional Public Infrastructure Provider (RPIP) licensees. NTO's can apply for national or regional allocations. The application requires a bank guarantee of USD1 million for the 700MHz and 800MHz sales, and USD500,000 for the other bands. Applicants must present a clear five-year rollout plan and agree to cover 90% of the licensed territory by the end of the fifth year. An average downlink data rate of 25Mbps must be achieved in greater Kampala, with 15Mbps rates guaranteed in other regional centers. Uganda's two main cellcos, MTN and Airtel, have both said they are ready to offer commercial 5G services as soon as spectrum is awarded.

(May 30, 2023) www.commsupdate.com

United Kingdom

Ofcom has lowered the thresholds for when Operators of Essential Services (OES) should inform the regulator of incidents, which should result in more cases of significant disruption being reported. Our Network and Information Systems (NIS) Guidance sets out the incident reporting thresholds for which we consider an incident to be of significant impact, and therefore when we expect OES to report incidents to us. Several outages have occurred recently in the Digital Infrastructure subsector that were not reported to Ofcom. While they fell below the previous reporting thresholds, we believe they could have had a significant impact on the continuity of essential services. As a result, following public consultation, we have decided to lower the incident reporting thresholds in our NIS Guidance. Improved visibility of incidents impacting UK users being reported to Ofcom will enable us to better understand causes of disruption to essential services, identify significant cyber security and resilience gaps and spot thematic trends. (May 31, 2023) www.ofcom.org.uk

United States

The FCC is considering spectrum sharing models in 500 MHz of the 42 GHz band. The agency wants to see how sharing models in this high band spectrum might best be used, especially among small wireless carriers. Whatever it learns can also inform future sharing approaches. The spectrum between 42-42.5 GHz is largely unused. The FCC says this so-called "greenfield" spectrum is ideal to experiment with sharing approaches because of the lack of incumbent licensees. Through a Notice of Proposed Rulemaking (NPRM) the Commissioners passed yesterday, the FCC will build a record on the benefits and drawbacks of implementing a shared licensing approach in this band. It will seek comment on three specific shared licensing approaches: a nationwide non-exclusive licensing approach, in which licensees coordinate specific deployment sites with a third-party database; a site-based licensing approach, in which licensees would apply for each deployment site directly with the FCC; and a technology-based sensing approach, in which operators would employ such technologies to avoid harmful interference from one another. The NPRM proposes licensing the 42 GHz band as five 100 MHz channels, and seeks comment on other aspects of implementing a shared licensing approach. It seeks input on including coordination mechanisms, first-in-time protections and buildout requirements. It also invites public comment on technical rules, and potential synergies with the sharing approaches being considered for the Lower 37 GHz (37-37.6 GHz) band. It proposes measures to protect radio astronomy services in the adjacent 42.5-43.5 GHz band.

(June 9, 2023) www.insidetowers.com

The Federal Communications Commission (FCC) has released an updated version of its location-based National Broadband Map, establishing that more than 8.3 million US homes and businesses currently lack access to high speed broadband. The FCC announced: 'On net, the improvements to the map since November helped to identify nearly 330,000 more unserved

locations.' Discussing the new methodology, FCC chairwoman Jessica Rosenworcel explained: 'For decades, the Commission produced broadband maps based on census blocks. In practice, this meant that if there was high-speed internet service in a single location in a census block, the agency assumed there was service throughout the area. Needless to say, this methodology left a lot to be desired. It overstated service nationwide. It also provided a less than accurate picture of unserved communities because it lacked the kind of granular data policymakers need if they want to address the digital divide. It was time to do things differently. So, in November 2022, the FCC developed its first location-based broadband map using new legal and technical tools to help it paint an accurate picture of where broadband is and is not available across the United States.' (June 1, 2023) www.commsupdate.com

Uruguay

Two of Uruguay's existing mobile network operators – Claro and Movistar – were the sole participants in the 5G spectrum auction held by the Regulatory Unit of Communications Services (Unidad Reguladora de Servicios de Comunicaciones, URSEC) earlier this week. The pair each acquired 1×100MHz of spectrum in the 3.5GHz band, with America Movil-owned Claro bidding USD28.10 million and Movistar, the local unit of Spain's Telefonica, paying USD28.05 million for the licenses, while a further 1×100MHz in that band has also been reserved for state-owned incumbent Antel. Each 3.5GHz spectrum license will be valid for 25 years. Rollout obligations include a requirement to deploy: 70 base stations within one year; at least two base stations in a minimum of ten or more departments (excluding Montevideo) within two years; and at least two base stations in each of the country's 19 departments by the end of the third year. (May 10, 2023) www.commsupdate.com

Vietnam

The Vietnamese Ministry of Information and Communications apparently announced its recent spectrum auction has been unsuccessful with no bids for airwaves, reported VietNamNet. Up for auction was mobile spectrum in the 2,300MHz - 2,400MHz bands. VietNamNet reported, that no operator registered their interest by paying a deposit to participate. The government was aiming to allocate three licenses for spectrum in the band to bolster 4G and 5G services across Vietnam. The licenses would have been valid for 15 years and were divided up as follows: 2300MHz-2330MHz; 2330MHz-2360MHz; and 2360MHz-2390MHz. Vietnam has several providers including MNOs Viettel, Vinaphone, Vietnamobile and Mobifone. But it is unclear why they did not participate in the auction. It was reported last month that all four operators had registered interest in the spectrum. (June 8, 2023) www.developingtelecoms.com

Four mobile network operators (MNOs) – Viettel, VNPT-Vinaphone, MobiFone and Vietnamobile – have applied to participate in the Ministry of Information and Communications' (MIC's) upcoming spectrum auction. The Ministry is set to allocate three licenses for mobile spectrum in the 2300MHz-2400MHz band for the development of 4G and 5G services. Winning bidders will be limited to 30MHz of spectrum each, divided up as: 2300MHz-2330MHz; 2330MHz-2360MHz; and 2360MHz-2390MHz. Licenses are valid for 15 years. On 21 February 2023 the MIC issued Decision No. 219/QD-BTTTT approving the plan to organize an auction for rights to use radio frequencies in the 2300MHz-2400MHz band for terrestrial mobile communication systems. (May 19, 2023) VietNamnet

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