# SAMENA TRENDS

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FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

## BUILDING DIGITAL ECONOMIES

THIS MONTH

## NEW TRENDS IN THE DIGITAL OPPORTUNITY REALM

# Partner2Connect (P2C) Digital Development Roundtable at WTDC

**7 - 9 June 2022**
**Kigali, Rwanda**

#Partner2Connect
itu.int/p2c-roundtable

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# New Trends in the Digital Opportunity Realm

Sustainability and inclusiveness are the key principles for any ecosystem. It is truly through collaboration and by fostering inclusion and participation of everyone that we can ensure that we will take into account different needs and issues into consideration.As our societies and the global economy digitalize, there are ever more possibilities to advance standards of living through human-centric, data-driven, and evidence-based policies, increased economic competitiveness, higher-quality jobs, enhanced provision of public services throughout the SA-ME-NA region.

To make progress on multiple fronts, which includes provisioning meaningful access to connectivity and achieving beneficial utilization of the 5th generation mobile broadband and fixed broadband technologies that our industry has created, we need also to be mindful of new opportunities that integration of seemingly diverse technologies can create and how we can further shape the opportunity landscape with focus on sustainability.

To focus on integration and making holistic use of technologies, with much larger goals, the foremost of which is closing the gap between connectivity and digital economy. The 5G technology arena — which are as much about mobile broadband as they are about cloud, AI, virtual reality,

and achieving more on the industrial fronts — demands tackling the financial resource gaps and incentivizing practical innovations to empower and sustain the region's digitalization . In addition to regulatory enablement, financial resources are required to build both 5G networks as well as fiber and IPv6 based fixed networks, not to mention foster digital trust-building through cybersecurity measures.

Expectations put forth by international ICT community, with our region's policymakers and regulators at the forefront, have defined sector development priorities fundamental to ensuring digital inclusion and expediting digital transformation efforts, and to help build a sustainable digital economy in the region. Digital resilience, as determined by resilient networks that are built on reliable physical and cloud infrastructure and enhanced robust connectivity, is crucial for making the most beneficial use of the Internet, how fast we can materialize a sustainable digital economy, and how well we can move toward creating a knowledge society.

The SAMENA Council Leaders' Summit 2022 is congregating industry leaders on May 9 to focus on integration, resilience, connectivity requirements for the next decade, and how innovation, partnerships, and creation of new human experiences will set our direction for years to come.

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

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# Industry and Regulators Collaborate to Foster Meaningful Connectivity

Digital transformation can only become a reality through concerted action that mobilizes broad support, including from the private sector. This was the key takeaway from a consultative meeting of industry leaders in the tech sector last month at the International Telecommunication Union (ITU). The 24 February meeting of the Industry Advisory Group on Development Issues (IAGDI) and Private Sector Chief Regulatory Officers (CRO) sought concrete input from companies and organizations interested in ITU's initiatives to expand global connectivity and support the hardest-to-connect communities. Governments around the world continue exploring policy and regulatory incentives to boost digital inclusion. Two years of global lockdowns and pandemic restrictions have underlined the need for meaningful and affordable connectivity as a pre-condition for full socio-economic engagement. Still, political will alone is not enough.

"We must continue engaging all stakeholders to bring the most pressing issues hindering connectivity to the fore, and to propose innovative solutions," said Doreen Bogdan-Martin, Director of the ITU Telecommunication Development Bureau.

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**Doreen Bogdan-Martin**
*Director of the ITU Telecommunication Development Bureau*

*"As Chair of IADGI-CRO, I encourage ITU's industry and private-sector members to engage closely with policymakers and regulators, strengthening their respective commitments to ensure affordable and reliable connectivity for all. ITU welcomes all of its members to join IAGDI-CRO discussions and encourages all stakeholders to join the Partner-2Connect Coalition to connect the unconnected."*

**Bocar BA**
*Chief Executive Officer, SAMENA Telecommunications Council.*

**Partners to connect**

The IAGDI-CRO meeting focused on making digital transformation projects viable and bankable, with an emphasis on applying transformative financing models for connectivity. ITU members from the private sector shared their views on how to connect people everywhere, empower communities, build digital ecosystems, and incentivize investments. A panel of thought leaders discussed the opportunities opened up by the Partner2Connect Coalition, an alliance of public and private stakeholders that ITU formed last year in cooperation with the Office of the United Nations Secretary-General's Envoy on Technology. The coalition aims to foster digital transformation in the hardest-to-connect communities in the least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing states (SIDS) in line with the UN Secretary General's Roadmap for Digital Cooperation.

**The Outcome Statement adopted at the meeting invites ITU members to:**

Make commitments via a new Partner2Connect (P2C) online pledging platform.

Participate in the P2C session at the World Telecommunication Development

Conference (WTDC) in June 2022. Offer guidance on key success factors for partnerships, especially in the context of information and communication technologies (ICTs) for development. Provide guidance on partnership frameworks, including governance structures, commitments, and responsibilities. Evaluate the efficacy of "plug & play" concepts such as model partnership agreements. Propose effective approaches to monitor and track pledges.

**An engaged private sector**

Private companies have demonstrated keen interest in fostering worldwide connectivity. Through the Partner2Connect initiative, industry partners have confirmed their intention to contribute to a central part of ITU's work – ensuring everyone benefits from accessible, affordable, and meaningful connectivity. As Chair of IADGI-CRO, I encourage ITU's industry and private-sector members to engage closely with policymakers and regulators, strengthening their respective commitments to ensure affordable and reliable connectivity for all. ITU welcomes all of its members to join IAGDI-CRO discussions and encourages all stakeholders to join the Partner2Connect Coalition to connect the unconnected.

## ITU & SAMENA Council Collaboration

# ITU Cooperation Enhancement Efforts Step Up while New UN Targets Surface to Achieve Universal Meaningful Connectivity

**Houlin Zhao**
Secretary-General
ITU

An estimated 2.9 billion people – 37 per cent of the world's population – have never used the Internet. An estimated 96 per cent of them live in developing countries – despite a global surge in connectivity surge the past two years.

The Office of the United Nations Secretary-General's Envoy on Technology and the International Telecommunication Union (ITU), in view of this prevailing digital divide, has recently announced a new set of 15 UN targets for universal and meaningful digital connectivity to be achieved by 2030.

> *"These targets will help countries guide their efforts towards effectively ensuring we meet our goal of universal and meaningful connectivity by the end of the decade."*

These new targets, developed as part of the work of the UN Secretary-General's Roadmap for Digital Cooperation Roundtable Group on Global Connectivity, co-chaired by ITU and UNICEF, prioritize universality, technology and affordability to ensure that everyone can fully benefit from connectivity. The Roadmap had called for establishing a connectivity baseline and targets to aid in advancing a safer, more equitable digital world and a brighter and more prosperous future for all.

"Universal connectivity alone is not enough to achieve the Sustainable Development Goals and ensure that every person has safe and affordable access to the Internet by 2030," said ITU Secretary-General Houlin Zhao. "These targets will help countries guide their efforts towards effectively ensuring we meet our goal of universal and meaningful connectivity by the end of the decade."[1]

The targets reflect the spirit and ambitions of the SDGs, the UN Secretary-General's Roadmap for Digital Cooperation, and the ITU's Connect2030 Agenda, setting out specific values to achieve each action area measured. They are also meant as a contribution towards the forthcoming Global Digital Compact, as proposed in the UN Secretary-General's Our Common Agenda report.

The new targets also aim to help countries and stakeholders in prioritizing interventions, monitor progress, evaluate policy effectiveness, and galvanize efforts around achieving universal and meaningful connectivity by 2030.

1 https://www.itu.int/en/mediacentre/Pages/PR-2022-04-19-UN-targets-universal-meaningful-connectivity.aspx

*Achieving universal and meaningful digital connectivity in the decade of action*

# Aspirational targets for 2030

Achieving universal and meaningful digital connectivity —the possibility for everyone to enjoy a safe, satisfying, enriching, productive and affordable online experience— is key for enabling digital transformation and meeting the Sustainable Development Goals.

As part of the implementation of the UN Secretary-General's Roadmap for Digital Cooperation, the International Telecommunication Union and the Office of the UN Secretary-General's Envoy on Technology have established a set of aspirational targets for 2030 to help prioritize interventions, monitor progress, evaluate policy effectiveness, and galvanize efforts around achieving universal and meaningful connectivity by the end of the decade.

More information:
**www.itu.int/umc2030**

**Notes** [1] *Mobile network of the latest technology* is the most advanced technology available in the country with at least 40% of the population already covered. | [2] Parity is deemed reached when the share of women using the Internet/owning a mobile phone/using a mobile phone/with specific digital skills, among the female population is equal to the share of men. | [3] Download speed. Mb/s = megabits per second. | [4] kb/s = kilobits per second.

## Universality targets

| | |
|---|---|
| **100%** | of population aged 15+ uses the Internet |
| | of households have Internet access |
| | of businesses use the Internet |
| | of schools are connected to the Internet |
| | of population is covered by a mobile network of the latest technology [1] |
| | of population aged 15+ owns a mobile phone |
| **>70%** | of population aged 15+ has basic digital skills |
| **>50%** | of population aged 15+ has intermediate digital skills |
| **Gender parity** | is achieved for Internet use, mobile phone ownership and use, and digital skills [2] |

## Technology targets

| | |
|---|---|
| **100%** | of fixed-broadband subscriptions are 10 Mb/s or faster [3] |
| **20** Mb/s | Minimum download speed at every school |
| **50** kb/s | Minimum download speed available per student [4] |
| **200** GB | Minimum data allowance for every school |

## Affordability targets

| | |
|---|---|
| **2%** | Entry-level broadband subscription costs less than 2% of gross national income per capita |
| | Entry-level broadband subscription costs less than 2% of average income of the bottom 40% of population |

**United Nations**
Office of the Secretary-General's
Envoy on Technology

ITU

*a device; or a lack of digital skills prevent them from getting the most out of their devices and services. ITU is committed to working with all relevant stakeholders, through all connectivity efforts including our Giga initiative in partnership with UNICEF to connect every school to the Internet, and leveraging our newly launched Partner2Connect Digital Coalition, to ensure that these targets are not just aspirational, but achievable."*[2]

*"Meaningful connectivity is key to achieve digital transformation,"* said Doreen Bogdan-Martin, Director of ITU's Telecommunication Development Bureau.

*"Among today's estimated 4.9 billion Internet users, many have to limit their usage because connectivity is unreliable, too slow or too expensive; they share*

**Doreen Bogdan-Martin**
**Director of ITU's Telecommunication Development Bureau**

Actions to accelerate global digital cooperation, seizing on the opportunities that are presented by technology – while mitigating the risks – so that progress towards achieving the Goals by 2030 can be made collectively:

- United Nations to serve as a platform for multi-stakeholder policy dialogue on the emerging technologies
- Accelerate discussions on connectivity and Promote the development of enabling regulatory environments
- deploying digital public goods as part of their immediate efforts
- to respond to critical situations, including pandemics
- accelerate the promotion of an inclusive digital ecosystem
- promote holistic, inclusive approaches to digital capacity-building for sustainable development
- build global artificial intelligence cooperation
- Deploy digital technologies in a safe and trustworthy manner that narrows the digital divide
- Create strategic and empowered multi-stakeholder high-level cooperation-building body to address urgent issues

The Partner2Connect Digital Coalition is a multistakeholder alliance launched by ITU to foster meaningful connectivity and digital transformation globally, with a focus on but not limited to hardest- to-connect communities in Least Developed Countries (LDCs), Landlocked Developing Countries (LLDCs) and Small Island Developing States (SIDS).

"In the wake of the COVID-19 pandemic, ITU has redoubled its efforts to help countries around the world expand connectivity, to reach communities where connectivity remains too fragmented or unreliable to offer meaningful benefits," said Houlin Zhao, ITU Secretary-General. "The Partner2Connect Coalition reflects these efforts, helping put new and emerging technologies truly at the service of humanity and sustainable development."[3]

P2C will support the implementation of the United Nations Secretary General's Roadmap for Digital Cooperation and the United Nations Secretary General's Our Common Agenda report.

*SAMENA Telecommunications Council is among the first private-sector representative entities that have entered the P2C pledge, focusing on access by connecting people everywhere; adoption by empowering communities; value creation through building digital ecosystems; and accelerating incentivized investments.*

As the UN's specialized agency for ICTs, ITU serves as a neutral and impartial platform to coordinate the development of the P2C Focus Areas Action Framework. The P2C Focus Areas Action Framework, will help further identify the key issues driving change across each of the Focus Areas, define specific gaps, and propose high quality interventions, pledges, and policies to fill those gaps. ITU will play a significant role in the mobilization, tracking, and monitoring of commitments and pledges.

*Source: Adapted from ITU content.*

2 https://www.itu.int/en/mediacentre/Pages/PR-2022-04-19-UN-targets-universal-meaningful-connectivity.aspx
3 https://www.itu.int/en/mediacentre/Pages/PR-2022-03-16-P2C-commitments-for-connectivity.aspx

## DG-TDRA Speaks to SAMENA Council

# Expanding the Circle of Digitalization

The world is constantly changing, and new concepts and patterns of work are forming before us every day, heralding a more complex future than humanity has ever known. In this situation, planning for the future is challenging, because foresight is the basis of planning, just as planning is the basis of success.

But the challenges seek, no matter how great, do not stand as a stumbling block for nations that, not only to anticipate their future, but to participate in creating and developing it for the sake of people's happiness.

> *Our government announced 2020 to be the year of preparations for the next 50 years. The announcement marked the formulation of the largest national strategy of its kind to prepare for the next 50 years on both federal and local levels.*

That's why the UAE has charted a roadmap for the future that indicates sustainability and progress in various fields such as health, education, space, infrastructure, tourism, science, environment and achievement of the UN's Sustainable Development Goals.

Our government announced 2020 to be the year of preparations for the next 50 years. The announcement marked the formulation of the largest national strategy of its kind to prepare for the next 50 years on both federal and local levels.

Citizens and residents, government and private sector entities were all invited to take part in formulating life in the UAE in the next 50 years. A task force committee for the 50-year Development Plan was formed to build on the legacy of the founding fathers and the nation's achievements over the past 50 years. Then, our society witnessed dozens of workshops, consultations, and events that revolved around one idea: What next?

Because the ICT sector today is at the center of all transformations, the Telecommunications and Digital Government Regulatory Authority (TDRA) was part of that active forward-looking movement. We are today in the midst of a critical stage that calls for the adoption of agile planning.



**Eng. Majed Sultan Al Mesmar**
Director General
Telecommunications and Digital Government Regulatory Authority, UAE

While we believe that what works for today, may not work after a few years, there are some constants that will not change for a long time, including the need to focus on innovation and creativity, and leveraging the benefits from advanced technologies, foremost of which is Communication and Information Technology (ICT).

The UAE was one of the first countries to bet on the sector as an engine for change and development. Recently, we

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have witnessed significant leaps in this context, as our government has adopted national strategies for the fourth industrial revolution, the 5G, smart transportation, 3D printing, cybersecurity and others.

Today we are among the most advanced countries in Digital Government, and in employing digital technologies in developing our society. We are moving from digital government to a digital life in which everyone engages and everyone benefits. When we say everyone, we mean the government, the private sector, the civil society as well as individuals.

Our experience has benefited from the vitality of the community and its lively interaction with the digital technologies. We are one of the countries with the highest penetration rate of the Internet, as 100% of the population uses the Web, which is a clear practical application of the United Nations slogan "Leaving no one behind".

This level of development is reflected in

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our literature at TDRA and the government as a whole, where we are talking about the transition from digital government to digital life. This means that we are expanding the circle of digitalization to include the whole society, and that is, in my view, the essence of the desired digital transformation.

## GCEO - stc Speaks to SAMENA Council

# Partnership and Progress – The Key to Driving Digital Transformation for the Benefit of Future Generations

Since its inception, the telecommunications industry has always witnessed rapid change and growth.

Its advent and development have been major factors in the economic development and growth of countries around the world. It brought people closer together and has acted as an accelerant to business for decades.

It also has a long history of working closely with the government and the public sector in the delivery of these advancements.

> *We are at a moment in history when we witness economies pulling ahead of others are rising fastest to this digital transformation challenge enabled by the clearest and most ambitious governmental digital strategy and regulations.*

The advent of the digital world has seen this scope, scale and pace accelerate even more. It has also led to the blending and merging of other previous unrelated sectors coming together and vying for the digital consumer.

Business, government, communication, leisure and entertainment, to name a few are now increasingly dependent on digital solutions for their continued success and progression.

As we all know the digital consumer is very demanding and discerning, so there is an ever-increasing pressure to deliver more and better services more cost effectively than ever before. We also need to be able to deliver this in a way which is mindful of the world's need to conserve our natural resources and deliver growth and progress in a sustainable way for future generations.

The key factors for success are how and how quickly this transformation occurs, which will determine the long-term winners and losers in this race. For this to happen it requires closer co-operation and partnership between governments and the private sector than ever before.

**Eng. Olayan M. Alwetaid**
Group CEO
stc

stc

We are at a moment in history when we witness economies pulling ahead of others are rising fastest to this digital transformation challenge enabled by the clearest and most ambitious governmental digital strategy and regulations.

> *In Saudi Arabia we are blessed with a wise leadership which has put digital transformation and sustainability at the heart of the transformation of our Kingdom's society and economy through Vision 2030.*

This requires strong leadership, both from the country leaders as well as from the industry. For example, in Saudi Arabia we are blessed with a wise leadership which has put digital transformation and sustainability at the heart of the transformation of our Kingdom's society and economy through Vision 2030.

Our leadership fully recognized the need for a multiple approach to increasing connectivity to help deliver this through delivering world leading wireless connectivity, delivering fiber optics to homes and businesses throughout the Kingdom, delivering access to data centers and data analytics, delivering increased global access through cables for global connectivity and developing platforms for people to improve their lives and businesses to enhance the efficiency and effectiveness of their products and services delivery.

This was backed up with clear policies and regulations to define the nature and focus of the government's plan for digital transformation and its role in Vision 2030. This enabled the ICT sector to come together in an unprecedented spirit of collaboration to create a digital backbone and ecosystem for government, business, the economy and most importantly the people using these services.

But why do I mention this? This is not only driven by great personal pride in being a Saudi and active participant in this change, but also as I have witnessed in both a personal and business perspective the impact of this collaboration and partnership.

The improved connectivity helped the Kingdom face the impact of the pandemic with confidence as it transferred seamlessly to a digital world, moving business, education, healthcare, financial services and many other sectors to the digital world. We were put severely to the test and emerged stronger and more digitally enabled than ever before. During that period, we set global standards for our response, something we are determined to double down on and deliver increasingly of in the future as the true benefit of rapid technological development was one of the few benefits of the pandemic.

This to me also underlines the importance of the work, discussions and decision we are making within SAMENA. As the world emerges from the pandemic and has been hit by additional geopolitical impacts to the world economy the ICT sector working closely with government needs to help address the global impacts of accelerating inflation and challenges to growth. For it is now proven beyond question that increasing digitization can not only rapidly improve quality, speed of delivery of goods and services, but also do them in a more cost-effective manner with reduced energy and cost input demands, helping drive towards a long-term sustainable future.

But don't just take my word for it. In the next decade according to entrepreneur and futurist Peter Diamandis, we'll experience more progress than in the last 100 years combined, as technology reshapes health and materials sciences, energy, transportation, and a wide range of other industries and domains.

As quantum computing is increasingly introduced its impact on the power of data analysis and micromanagement of multiple matters will exponentially rise. The integrated power of technology fuels robotics, the Internet of Things (IoT), logistics and 3-D or 4-D printing, amongst many others to par back routine tasks, improve operational efficiency, enable remote decision -making and accelerate time to market.

> *For it is now proven beyond question that increasing digitization can not only rapidly improve quality, speed of delivery of goods and services, but also do them in a more cost-effective manner with reduced energy and cost input demands, helping drive towards a long-term sustainable future.*

The challenges facing the ICT industry are immense and highly complex with significant decisions and investments to be made at pace. The opportunities and benefits are even greater. As we all know for all this to succeed there needs to be the right kind of reliable and rapid connectivity
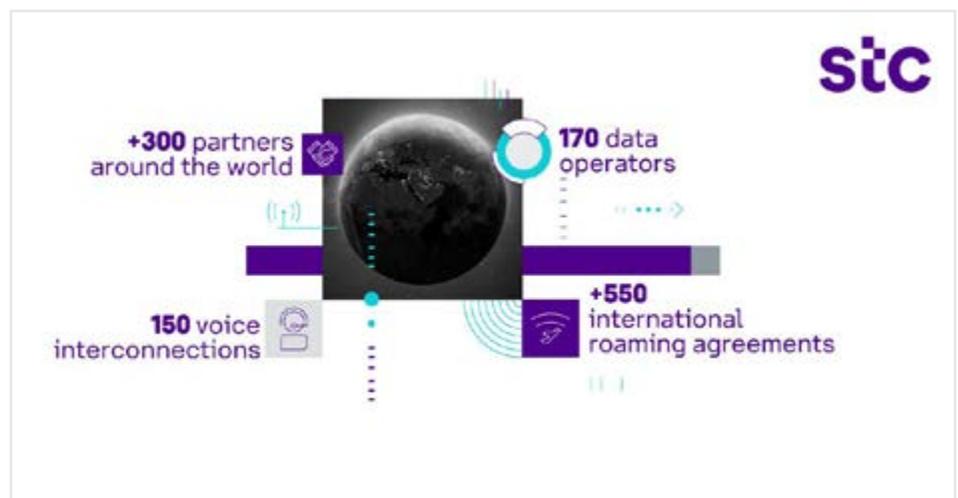
and data storage with analysis in place. The telcos business as we used to define it is critical for this.

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5G plays a vital role in all this. As many analysts and industry commentators have mentioned, the biggest opportunity for 5G is in enterprise. Whilst the rise in consumer 5G usage is significant with research estimating that 5G will hit 3 billion subscriptions globally by 2025, the potential is driven by 5G connection to the IoT. This will hugely impact logistics management and flows, driving future

efficiency of global trade flows. Factory floor automation will be one of the big use cases. Another is fixed wireless, which could boost connectivity through private 5G networks deployed across organizations, regions or education establishments. In fact, almost every business and home in the world can be transformed through the connectivity of IoT through 5G.

5G is also a strong economic leveler, which allows entrepreneurs and startups to accelerate their growth through hyper-connectivity and usability to their suppliers and customers, wherever they may be based.

Now, more than ever platforms and organizations such as SAMENA Council are critical in the preservation, growth and development of economies and countries. At a time when geopolitical tensions are heightened, never before has the world needed the ICT sector to drive its collective decision making for the betterment of the world, its economy and its people.



As an industry we have to not only compete strongly but to collaborate healthily. For to make this work, deep partnership, openness, and a determination to make sound, thought through decisions at pace is required for the benefit of the people.

> *Now, more than ever platforms and organizations such as SAMENA Council are critical in the preservation, growth and development of economies and countries. At a time when geopolitical tensions are heightened, never before has the world needed the ICT sector to drive its collective decision making for the betterment of the world, its economy and its people.*

Amongst all this conversation about technology, we must also retain people at the heart of everything we do. Our future workforces are the first born digital. In Saudi Arabia, we are blessed with a vibrant, smart, ambitious, driven and tech savvy young population. We must empower this generation so that they have the skill sets required to drive the pace of change and development and take full advantage of the available tech and innovations to come. All of us, working with our governments have the formula and need to develop their skills further and to realize the potential talent of our boys and girls who will take this industry and their countries to the next level.

## CEO - SAMENA Council Highlights New Trends

# Thriving with Resilience & Integration in the New Opportunity Realm

*CEO – SAMENA Council shares his views on new network trends, technology integration, sustainability, and what this year's leaders' congregation, the Leaders' Summit 2022, is expected to bring forth.*

**Q. What are some key considerations for thriving in the new digital era?**

**A.** The post-pandemic world is driven by the urgency in co-operation between the world's Private and Public sectors, and there is a greater need to pursue integration of technologies, digital infrastructure, policy and regulatory approaches, and business models.

> *Times are calling for revamping cost structures, embracing new technologies such as cloud communications, AI, IoT, Big Data analytics, new mobile applications, enabling sustainable investment in the fifth-generation of mobile technologies, and, importantly, engaging in smart partnerships.*

Times are calling for revamping cost structures, embracing new technologies such as cloud communications, AI, IoT, Big Data analytics, new mobile applications, enabling sustainable investment in the fifth-generation of mobile technologies, and, importantly, engaging in smart partnerships. On the latter front, recent initiatives such as the ITU's Partner2Connect (P2C), built on the principles of inclusion, partnership, and SDG-focused digital development, are important to consider and contribute to. It's the age of metaverse, and it requires transformational steps to be taken on wide scale.

**Q. What do you consider to be among the newest disruptions taking place within the Telecom Industry?**

**A.** Connectivity requirements for the new decade and new network trends and associated challenges are prevalent within the Industry. Concurrently, innovations are surfacing at a great speed, such as OpenRAN, which represents a combination of existing technologies, e.g., virtualization, AI, commercial off-the-shelf parts and open interfaces. It proposes an alternative way to design and build the RAN portion of a mobile network by combining hardware and

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software components from different vendors. Thanks to open and interoperable interfaces, to be made possible with open standards and open architectures, multi-vendor implementation is possible on a single site, which is a step forward in going beyond today's multi-vendor RAN deployment in different sites.

From the perspective of architecture design, OpenRAN appears to leave complexity to Telecom Operators, and for it to be deployed in the region, extra investment in fiber-to-the site will be essential, resulting in higher costs for Operators and that too in an environment in which revenues have been shrinking whereas customer expectations have risen, and where there already exist other priorities. Such disruptions and their impact on operations and management are complex, and need to be openly discussed in an objective setting. SAMENA Council is ever ready to provide such objective settings and platforms.

**Q. Lately, there has been an emerging interest in Space. Could terrestrial ICT players synergies with satellite/space players in a productive manner?**
A. Where current times are presenting new challenges and opportunities not witnessed or perceived earlier, we are seeing greater synergies emerge between

*Given the magnitude of connecting everyone, and in times when revenue-degradation and numerous other challenges confront the Telecom industry, new infrastructure funding and financing models are being proposed, and it would be necessary to foster collaboration among the communications service providers that are operating at the surface of the planet and those that are operating in space.*

*I consider eight issues to be absolutely critical for ensuring sustainability in the digital ecosystem. These are: making spectrum available with effective regulatory enablement practices; addressing the region's spectrum interference issues, particularly in the coastal areas of the Arabian Peninsula; adopting a region-wide optical network strategy and overcoming procedural challenges in the laying of fiber; reducing high industry fees and taxation on Operators by taking into consideration international practices and new "collaborative regulation models" that foster inclusive stakeholder participation; and creating a level-playing field for all digital communication service providers, and certainly not at the expense of incumbent Operators, so that the Operator community continues to contribute to the development of ICT infrastructure.*

earth sciences and digital technologies and space exploration. If we place this in the specific context of connectivity, we realize that the global goal of digitally connecting the entire planet in a sustainable and investment-conducive manner remains a challenge, especially since over 36% of the world's population still remains unconnected or offline due to lack of connectivity infrastructure.

Given the magnitude of connecting everyone, and in times when revenue-degradation and numerous other challenges confront the Telecom industry, new infrastructure funding and financing models are being proposed, and it would be necessary to foster collaboration among the communications service providers that are operating at the surface of the planet and those that are operating in space.

Thus, I consider new synergies emerging between the thriving digital economy and the emerging space economy. With space exploration catching pace and stakeholders drawing focus on the need to address sustainability not only at the surface of the Earth but also in space (which, for the reference of your readers, includes managing satellite launches, rocket fuel, orbital slots, space debris management, etc.), it would be interesting to see how collaboration can be built between terrestrial and space players in this era of 5G. Here I take the opportunity to extend congratulations to the Mohammed

Bin Rashid Space Center (MBRSC) on having publicly launched the World Space Sustainability Association (WSSA); an initiative that could play a very relevant role in this region, starting with the UAE, to build such synergies.

**Q. What are some of the priority business issues for the Industry?**
A. I consider eight issues to be absolutely critical for ensuring sustainability in the digital ecosystem. These are: making spectrum available with effective regulatory enablement practices; addressing the region's spectrum interference issues, particularly in the coastal areas of the Arabian Peninsula; adopting a region-wide optical network strategy and overcoming procedural challenges in the laying of fiber; reducing high industry fees and taxation on Operators by taking into consideration international practices and new "collaborative regulation models" that foster inclusive stakeholder participation; and creating a level-playing field for all digital communication service providers, and certainly not at the expense of incumbent Operators, so that the Operator community continues to contribute to the development of ICT infrastructure. Times are calling for shared responsibilities, and this has been one of the recommendations in the SAMENA Council – chaired work done at the Broadband Commission's working group on 21st century funding and financing models.

Nonetheless, the underlying requirement of adopting innovative regulatory and policy approaches remains, such as "regulatory sandboxes" to overcome long-pending issues relating to cross-border flows, and to better support licensed Operators in helping meet their own financial targets through improved revenue-generation, and to enable to them to invest in the drive toward achieving Universal Digital Access in the SA-ME-NA region.

**Q. Apart from the business sustainability, what other aspects of sustainability are Operators contributing to?**
**A.** Sustainability of our environment and the planet is of utmost importance for all, and the Operator community, even on this important front, is playing its vital role.

As you know, just this year, stc Group, e&, Zain Group, Omantel, among others, signed a pact to accelerate and tighten cooperation to ensure protection of the environment and to content with climate change challenges by reducing their carbon footprint through greener operations. The same pact is also aimed at strengthening collaboration with strategic partners and policy-makers around necessary

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measures, which may help avoid climate crisis and achieve sustainable growth.

It is time to set net-zero targets and reduce carbon emissions, and this collaboration among the GCC Operators will prove to be a game-changer in the SA-ME-NA region.

**Q. What are the objectives of this year's Leaders' Summit?**
**A.** Our objectives in the 2022 back-to-business, physical edition of Leaders' Summit is to help demonstrate leadership and commitment of stakeholders to accelerate post-pandemic recovery; showcase participation and relevance of new industries and stakeholders in the 5G and post 5G eras; experience newest innovations in digital 5G-era technologies, network infrastructure, collaboration models, integrated digital service delivery; and to unearth new possibilities for Telecom Operators as well as vertical segments in materializing new business successes.

Leaders' Summit 2022 will welcome Chairmen and CEOs from the private sector, and top decision-makers from regulatory authorities and global bodies and institutions, spanning multiple geographies. It will also include participation of global leaders and entities

> *Our objectives in the 2022 back-to-business, physical edition of Leaders' Summit is to help demonstrate leadership and commitment of stakeholders to accelerate post-pandemic recovery; showcase participation and relevance of new industries and stakeholders in the 5G and post 5G eras; experience newest innovations in digital 5G-era technologies, network infrastructure, collaboration models,...*

focused on institutionalizing and fostering cross-sector digitization and collaboration, making the Leaders' Summit the year 2022's premier virtual destination for leadership, dialogue, demonstration, and for refining future policy and regulation. Leaders' Summit 2022 will build the case for taking 5G discussion beyond connectivity to real-life innovations and impact for the business and the society. The Summit, this year, goes beyond 5G and into integration of multiple technologies and innovations.

## President Huawei ME Speaks to SAMENA Council

# The Success of Our Intelligent World Relies on Connectivity

Huawei predicts that, by 2030, there will be 200 billion connections worldwide, and data will reach 1 YB every year, a 23-fold increase over 2020. As a result, there are increased demands for intelligence, efficiency, resiliency, and trusted connectivity and the basic needs of speed, capacity, and bandwidth in broadband networks.

The evolution of technology has changed how people use data services and, in turn, modified the data demands in the network. At the same time, the digital industry transformation is accelerating, different digital services will generate more data through massive machine type connections in the network. Soon we will find ourselves in an intelligent world that requires ubiquitous intelligence to integrate the virtual and the physical world that will generate and transmit more data.

> *As the region's connectivity technology and ecosystem mature, we see carriers integrate other technologies such as cloud, AI etc, to formulate 'XtoB', aim to accelerate the industry's digital transformation*

With the industry's digital transformation accelerating, to enable the specific industry digital solutions, many enterprises require a single service provider to provide end-to-end capabilities such as, secure, reliable and agile campus and cloud networks, cloud and edge computing capability, data centres facilities, and industrial internet of things (IIoT) and integrated services. Such demands will provide massive opportunities for the carriers to create XtoB capabilities and further drive revenue growth in its 2B sector.

We have seen that XToB revenue growth for 12 major carriers in Europe increase 3.3% year-on-year, compared to 0.7% for toC revenue. Connectivity such as enterprise internet connections, private lines, new cloud networks, and OTN Premium Leased Line services account for 62% of XtoB revenue.  The revenue of cloud service is also growing rapidly.

**Steven Yi**
President
Huawei Middle East

HUAWEI

Among the XToB capabilities, 5G can be seen as the breakthrough element. As 5G matures, carriers are moving into scenario-specific business applications. Huawei has signed more than 3,000 commercial contracts for industrial 5G applications globally by working with carriers and partners. These 5G applications are currently seeing large-scale commercial use in sectors like manufacturing, mines, iron & steel plants, ports, and hospitals. In our case, Huawei's 5G solutions for industries have been replicated at scale across eight typical application scenarios, including remote equipment control, data collection, and product quality inspection.

*As the network evolves, a few focus areas for service providers to ensure stable operations and offer differentiated service to customers*

First we need to ensure that their networks are secure. This means working with partners and the broader ecosystem as security is a shared concern. We are fully certified by both NESAS and SCAS, which are industry security standards used as a unified certification system by global communication and wireless technology standard bodies and regulators. More important, Huawei product and solution are designed to comply with 3GPP 5G security architecture.

The demands in the network from

*By combining 5G with technologies like AI and cloud, we can effectively power low-carbon development with green ICT.*

businesses and consumers have moved towards better experience, reliable connectivity, ultra-low latency, add on the basic needs of speed, coverage, and capacity. Hence, many operators evolution strategies focus more on security than open software, aim for architecture integrity than over-complicated interoperability. Additionally, many operators believe having intelligence in the network and operation and implementing green solutions will fundamentally reduce costs and have better TCO.

Second, service providers must themselves digitally transform as they enable their customers to digitize operations. Just as cloud has transformed enterprises, cloudification of the communication network infrastructure helps operator networks become the infrastructure for a fully connected world. Many operators in the Middle East have also started building up their cloud capabilities in the country, as the cloud is the national cloud is the foundation of enabling a country's digital sovereignty and digital economy growth

Green development has become a globally recognized mission. And as digital and green technologies converge, digital technology will be key to accelerating

decarbonization. Together with AI-enabled analytics and cloud, 5G can help industries to implement new processes as an integral part of an energy efficiency programme, by supporting the most efficient and flexible allocation of resources. As a global ICT leader, Huawei effectively combines its technical strengths in 5G, cloud, and AI to provide low-carbon or even zero-carbon energy solutions for different industries.

Furthermore, we are working with global carriers to build simplified, green, and intelligent ICT infrastructure. By the end of 2021, we have helped carriers in more than 100 countries and regions deploy green site solutions. These solutions have helped save roughly 84.2 billion kWh of electricity and reduce CO2 emissions by about 40 million tons. This is part of our greater efforts to promote the green development of the ICT industry as a whole.

Creating shared value through a robust partner and talent ecosystem is crucial for the prosperity of the regional ICT sector. Huawei firmly believes in empowering the development of end-to-end capabilities and a prosperous industry ecosystem with partners. Building on our strengths in ICT infrastructure technologies, characterized by device-network-cloud synergy, we have stepped up efforts to create a digital ecosystem where all players create and share value together in order to help industries go digital. Over 700 cities and 267 Fortune Global 500 companies worldwide have chosen Huawei as their partner for digital transformation, while over 30,000 partners are working with us to serve the enterprise market.

*Huawei is committed to creating more value for customers and we will always keep innovating. We are actively seeking systemic breakthroughs and bolder investments in R&D.*

Furthermore, digital talent plays a huge role in driving digital transformation and advancing the digital economy. This is why we are working with our partners

worldwide to develop a more robust digital talent ecosystem and drive broader digital inclusion through our various programs. Huawei has launched or sponsored multiple other talent development programs and

> *We should look ahead when it comes to adopting new technology, and only in this way we will not be left behind.*

competitions at the global, regional, and country levels, including scholarship programs, Huawei ICT Academy, Huawei Developers Training, Huawei Cloud Developer Institute, Women in Tech, and Technology for Education (e.g., DigiSchool, DigiTruck, and SmartBus). We have already invested more than US$150 million into these programs as part of our commitment to local ICT talent development, and 1.54

million people from over 150 countries have benefited from them.

To date, Huawei has opened 152 Huawei ICT Academies in the Middle East alone. More than 15,000 students got Huawei Certifications, and over 76,000 students participated in Huawei's annual ICT Competition. More than 3,000 students have engaged in its flagship program, Seeds For The Future.

Huawei exists to serve our customers and help them solve their commercial problems. Together with our partners, we will continue providing innovative products and quality services to help those who choose to work with Huawei seize new opportunities. Additionally, we will also keep increasing investments in the future and make strategic breakthroughs to create greater value for our customers, the communities where we operate, and the society that we serve. To ensure we stay

at the forefront of technology innovation, we emphasise the great importance of continuous R&D investments. In 2021, Huawei invested around USD22.4 billion in its R&D, which is almost 15% of our revenue.

We believe to build a green intelligent network for the future digital world; we need to look ahead and find the best ingenious technology that can genuinely bring intelligence to the devices, network and platform. Not only to better serve consumers but also to provide abundant innovative solutions to accelerate industry digital transformation.

From 2G, 3G, 4G, to 5G, we have spent 20 years becoming this region's most important strategic partner in the Middle East. We will continue working with our partners to build a fully connected, intelligent world with all things, people and organisations that are connected!

**Every year, Huawei invests over 10% of its sales revenue into R&D.**

In 2021, our total R&D expenditure amounted to **CNY142.7 billion**, equaling **22.4%** of the company's total revenue.

Over the past decade, Huawei's total R&D investment surpassed **CNY845 billion**.

In 2021, **107,000** employees, representing **54.8%** of Huawei's total workforce, worked in R&D.

**Huawei has one of the largest patent portfolios in the world.**

By the end of 2021, Huawei held a total of **110,000+** active patents, across **45,000+** patent families.

In terms of the number of patents granted in 2021, Huawei ranked **No. 1** at both the China National Intellectual Property Administration and the European Patent Office, and **No. 5** at the United States Patent and Trademark Office.

**The patents held by Huawei are broadly recognized across the industry.**

Patent panorama reports published by independent third parties show that Huawei is an **industry leader** in the fields of **5G, Wi-Fi 6, and H.266**.

More vendors are signing agreements with Huawei to **use our patented technologies**, expanding from the communications industry to intelligent vehicles, smart homes, and IoT.

## SDG #13 - Climate Action

# stc Group, Etisalat (e&), du, Zain Group, Batelco and Omantel Take Collective Step to Ensure Environmental and Regional ICT Sustainability



stc Group, e& formerly known as Etisalat Group, Zain Group, Batelco, du, and Omantel signed an MOU at the Mobile World Congress 2022, aiming to accelerate and tighten cooperation to preserve and protect the environment and enhance climate change challenges as well as reduce the carbon footprint through operations. This memorandum comes within the cooperation of major telecom operators in the Gulf Cooperation Council Countries to improve the ICT industry and activate their roles in facing environmental challenges, focusing on climate change and advancing the regional sustainability agenda. The MOU aims to accelerate cooperation on climate change and highlight the importance of collaboration to preserve and protect the environment as well as to maintain a sustainable economy. The actions involved include a better understanding of the carbon footprint across operations. The memorandum also seeks to strengthen work across strategic partners and policy makers around necessary measures that contribute to avoiding the climate crisis and achieving sustainable growth. "This memorandum is an extension of KSA's vision in strengthening partnership between all sectors to preserve and sustain the economic, social and environmental resources achieved by the Gulf Countries for future generations" said Abdullah Abdulrahman Alkanhl, Chief Corporate Affairs Officer. "As a leading national company, stc has sensed this importance for a long time, and launched programs for sustainability and preservation of the environment. One of the most important results of which was a decrease in paper

consumption to 50%, and a reduction in water use by 40%. Today we will work according to this memorandum to transfer these experiences to our partners in the sector from the companies of the Gulf Cooperation Council countries", added Alkanhl. Salem Al-Mannai, Vice President of Technology Infrastructure and in charge of the climate change file at e&, said: "Through this memorandum, the group seeks to strengthen its partnerships to confront climate change and make all possible efforts to motivate other sectors to join these endeavors aimed at accelerating the achievement of carbon neutrality in the possible time frame in addition to our commitment to the GSMA initiative; to move the entire mobile industry to carbon neutral by 2050." "The group also seeks, through this memorandum, to exchange experiences and best practices with regional counterparts regarding the pioneering role of the technology sector, which would become a major enabler to limit climate change", Al-Mannai added. "Jennifer Suleiman, Zain Group Chief Sustainability Officer, said: "Climate change and reducing our carbon footprint are material to Zain's strategic objectives across our markets. This collaboration between like-minded operators is a transformative step towards advancing sustainability across the GCC and is in line with our sustainability ambition of providing meaningful connectivity leading to systemic change." Commenting on this cooperation, Shaikh Bader bin Rashid Al Khalifa, General Manager Corporate Communications and Sustainability at Batelco, said: "Batelco attaches great importance to environmental sustainability and reducing the carbon footprint. We have started implementing initiatives in line with the company's aims of becoming an environmentally friendly entity and achieve our corporate sustainability goals. Batelco's most notable accomplishment is the launch of Batelco Solar Park, which contributes to the production of clean and renewable energy to support with running the company's operations. We are eager to continue with our environmental initiatives to help create a more sustainable future." Saleem AlBlooshi, Chief Technology Officer, du said: "We, at du, recognize the crucial role played by ICT in strengthening the digital economy and ensuring long-term sustainable growth in the GCC region. We have put in place sustainability objectives that aim to guide us towards achieving our vision in alignment with the region's leadership vision. As forerunners in digital innovation along with our strategic partners,

we are committed to work towards a truly sustainable future with and for our stakeholders." Eng. Said Al Ajmi, Vice President Operations, of Omantel, said: "At Omantel, we have great concern towards sustainability, and our focus includes three main pillars: the economic pillar, the social pillar, in addition to the environmental pillar. We are proud to be one of the first telecommunication companies in the region to issue a sustainability report covering performance in all these aspects, as we issued our first report in 2012, in addition, we launched several initiatives aimed at reducing our impact on the environment by building on the digital transformation and automation and benefiting from it, in developing and transforming our procedures and processes." "We are pleased to sign this agreement with stc and the other Gulf telecom companies to exchange knowledge and experiences, emphasizing our quest to preserve the environment and play the expected role in combating climate change and reducing the carbon footprint of our operations", Al Ajmi concluded.
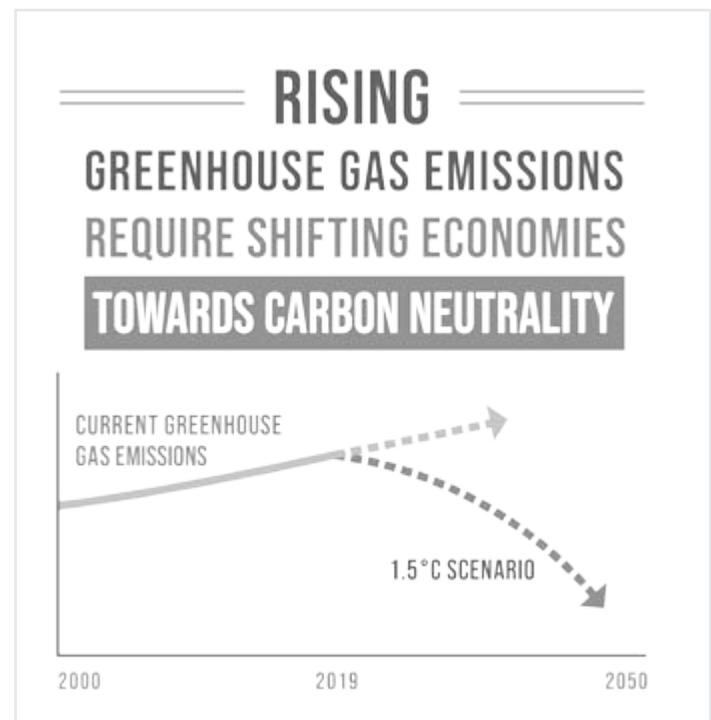




*Source: Goal 13 | Department of Economic and Social Affairs (un.org)*
*https://sdgs.un.org/goals/goal13*

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## MEMBERS NEWS



# stc, First to Switch on 5G 3 Component Carrier Aggregation in the Middle East and Africa

stc, Nokia and MediaTek announced that they have successfully verified 3 Component Carrier Aggregation (3CC-CA) in a 5G Standalone (SA) network in the city of Makkah for the first time in the Middle East and Africa. Carrier Aggregation (CA) allows mobile operators to reach higher throughputs by combining FDD and TDD spectrum and efficiently utilize their spectrum assets to enhance the 5G user experience. CA will support stc to deliver leading 5G services to its customers, as well as achieve a faster time to market for new 5G use cases. The companies used the combination of one FDD carrier (20MHz) and two TDD carriers to create 180MHz of spectrum using FDD-TDD CA technology. Nokia used its commercial AirScale Baseband, massive MIMO and RRH products, powered by its Reefshark chipset on stc's live network. MediaTek provided its 5G mobile platform featuring its Release-16 ready, M80 modem. The trial also demonstrated how carrier aggregation will improve the overall 5G

experience, as well as reducing the battery consumption of user devices in stc's network. CA combines spectrum from different frequency bands to enhance coverage and network capacity, providing higher data rates, increased coverage and superior indoor performance by allowing service providers to make optimal use of 5G spectrum. It also enables service providers to bring down the cost of deploying 5G networks while enhancing customer experience. Bader Allhieb, Infrastructure Sector VP at stc, said: "This crucial, region-first trial of 3CC-CA in 5G SA mode reiterates our commitment to provide a world-class experience to our subscribers. Nokia's carrier aggregation solution gives us a competitive edge by providing best-in-class speed, capacity and coverage to our subscribers. We look forward to continuing our engagement with Nokia to enhance our 5G capabilities and efficiencies." Khalid Hussein, Head of stc Customer Business Team at Nokia, said: "Carrier aggregation allows

service providers to make optimal use spectrum without impacting the network performance. Nokia is at the forefront of developing 5G CA and other technologies that support service providers in maximizing the use of available resources. We look forward to implementing this solution with stc based on commercial hardware and software." Rami Osman, Director, Business Development Middle East and Africa at MediaTek, said: "Today we demonstrate a significant milestone of combining 3CC-CA radio technologies with 5G Standalone architecture to deliver best-in-class speed and efficiently boost the utilization of 5G spectrum assets. This collaboration paves the way to keep Saudi Arabia on the top of global scale of 5G network performance by taking advantage of this cutting-edge connectivity features for smartphones powered by the Dimensity 9000 flagship and forthcoming Dimensity 5G mobile platforms."

# stc and the London Internet Exchange (LINX) Expand JEDIX Interconnection Services in Saudi Arabia

stc and the London Internet Exchange (LINX) announce the expansion of interconnection services to new Internet Exchange Points (IXPs) in Riyadh and Dammam to complement the initial collaborative project, JEDIX, which was launched in 2018 in Jeddah. All internet exchanges will continue to be supplied and managed by the London Internet Exchange (LINX). JEDIX, the first exchange point in KSA, is a carrier neutral exchange which interconnects carriers, cloud, content providers, local ISPs and enterprise networks connected in MG1 (MENA Gateway). Jeddah is one of the main landing stations for subsea cables in the Middle East, providing convenient

onward connectivity to Asia, Europe and Africa. The aim of the stc-LINX partnership has always been to improve the quality of KSA's internet while rapidly evolving into the preferred digital interconnection hub to serve the Middle East. The expansion of JEDIX to Dammam and Riyadh builds on this ambition. Internet Exchange Points provide a platform or central hub for networks to interconnect with other networks (peer) via a single connection. Networks often benefit from lower latency, increased control, and resilience. Expanding to new cities improves all three of these benefits for both hosted clients and end users. The new sites in Riyadh and Dammam are due to launch later this year and will not only mark the stc and LINX interconnection footprint as the largest in the Middle East, but it also creates a complete digital

solution. Dammam is to the East of Saudi and is a key location for the country's energy sector and associated businesses. It is also strategically close to other neighboring countries which may benefit from interconnected services. Riyadh is the capital of Saudi and the location of the King Abdullah Financial District (KAFD), which is a key area designed to serve the local and regional financial sector. stc operates many state of the art Data Centers (DC) across Saudi which are linked via stc's extensive terrestrial network. The benefit to collocated clients is the ability to operate extensive disaster recovery and business continuity solutions. In addition, clients can operate complex disaggregated system solutions across what can be designed as a single virtual DC infrastructure. With large, global networks

like Google and Microsoft currently peering at JEDIX, growth to other key digital hubs in KSA was a natural next step for the teams. "With JEDIX expansion the new sites will complement our initiative in establishing a major digital hub for the Middle East and North Africa, ensuring the leading position for KSA across the ICT sector and continue to highlight our role as the leading player in the region", said Mohammed AlAbbadi, Chief Wholesale Officer, stc. Kurtis Lindqvist CEO for LINX says, "We are really looking forward to growing our technical solution with stc and the new interconnection hubs this year. The growth of JEDIX has proved that the region is thriving digitally and together we are providing the solutions and the infrastructure to support this going forward."

## stc and PIF Unite to Boost IoT in Saudi Arabia

Saudi Arabia's Public Investment Fund (PIF), among the largest sovereign wealth funds in the world with total estimated assets of at least US$500 billion, and Saudi telecommunications company stc Group have signed a joint venture agreement to establish a new company specializing in the Internet of Things (IoT). The company ownership will be 50% PIF and 50% stc. It will be headquartered in Riyadh. The JV agreement is part of PIF's and stc efforts to drive the rapid growth of IoT across Saudi Arabia and to make the country a regional center for the Middle East and North Africa. The new company aims to leverage the expertise and technology of existing IoT partners and expand to become a 'one stop shop' for IoT solutions. It also aims to contribute toward the realization of Saudi Vision 2030, a strategic framework to reduce Saudi Arabia's dependence on oil, diversify its economy, and develop public service sectors such as health, education, infrastructure, recreation and tourism. The company is expected to be a technology-agnostic service provider with a solution offering in the smart industrial manufacturing sector, smart logistics transportation sector and smart cities. In addition to providing IoT solutions, the company will also help create an ecosystem by providing consulting, implementation and training support as well as facilitating innovative funding models to support businesses in their adoption of IoT. The deal is subject to satisfying the conditions in the JV agreement and obtaining the relevant approvals from the competent authorities. Local market studies indicate vast growth in the size of the IoT market in the kingdom to, potentially, reach SAR 10.8 billion (about US$2.9 billion) by 2025 with an annual growth rate of 12.8%. stc has invested aggressively in building



its 5G and NB-IoT connectivity infrastructure, with more than 15,000 communication towers and a coverage rate of more than 85% of urban areas.

# stc's Expansion Strategy Results in a US$158 Million Acquisition Deal

In continuation of stc Group's strategy of expansion and digital services, and after the success achieved in the IPO of solutions by stc, "solutions by stc" announced its intention to acquire Giza Systems Company, by signing solutions a binding offer with Energy Technologies to acquire a percentage of 89.49% of Giza Systems Company LLC, which is owned by Energia Technologies. Also, solutions by stc will acquire 34% of the stake owned by Giza Systems Company (LLC) in Giza Arabian Systems Company Ltd., with a total value of 158 million dollars. This acquisition represents a strategic step

enables solutions by stc to expand in global markets and move forward towards achieving the goals of the company and stc group's strategy. It is the first step of its kind for solutions to enhance its position inside and outside the Kingdom as a pioneer in digital transformation through its international investments. This acquisition is also an extension of solutions' plans to create expansion in new markets and business lines, with the aim of meeting the needs of its clients in the public and private sectors. The acquisition of "Giza Systems" comes within the expansion plans of stc Group to continue to lead the digital

transformation in the Kingdom, which is witnessing huge and qualitative leaps in light of Vision 2030, which places digital transformation as one of the main pillars to achieve it, as solutions plays a leading role in enabling digital transformation and contributing to Shaping the new digital future in the Kingdom, by providing innovative and integrated digital solutions being the technical arm of stc Group. It also represents a strategic step for external expansion and an opportunity to consolidate and enhance the Kingdom's position and the strength of its telecommunications and information technology sector, as an extension of the leadership of stc Group. Giza Systems is a pioneer in information technology and offering technical solutions with more than forty years of experience, as it has developed into a regional force in enabling digital transformation, systems integration, and emerging technologies in the Middle East and Africa. And that through its offices in each of the Kingdom, the United Arab Emirates, Qatar, and the United States of America and its wide customer base in more than 25 countries.



**stc**

**Going further with expansion**

In continuation of its pioneering efforts in investing in technology, stc's strategy for growth and expansion results in an acquisition deal worth 158$ million (SR592.50 million).

# stc Earns the Excellence GTI Award and Signs Innovative Technology Partnerships

stc Group, the Saudi digital enabler in KSA and the region, earned the Excellence Award organized by the Global TD-LTE Initiative (GTI), for its contribution to the innovative "Smart IoT Ecosystem". The award was announced during the "GTI Online Summit 2022" that was held as part of the Mobile World Congress (MWC22) event in Barcelona. stc was presented and honored through this award for its dedication towards its significant contribution to providing innovative mobile services, applications, and solutions enabled by 4G, 5G and Enterprise Network Solutions technologies for consumers and verticals. Furthermore, stc signed a number of partnerships with the world's leaders of the communications, networks and information technology industries, during its participation in the Mobile World Congress (MWC22) in Barcelona.

The partnerships with Ericsson, Nokia, Huawei, Intel, Cisco and Microsoft, were the most prominent, in addition to other companies, in a step to expand and develop 5G networks, cloud services, edge computing, and accelerate the open digital infrastructure, as well as to establish a "Disaster Recovery Data Center", that aims at enhancing the customer experience and enabling the Kingdom's digital transformation. stc's agreements with Ericsson focused on researching the capabilities of 5G network technologies, enhancing network performance and supporting its deployment in the Kingdom, which will provide stc subscribers with higher data speeds, as well as enabling a range of new applications with low response time, and transforming the current structure into an open digital structure to support Innovative services for the fifth-

generation network and the Internet of Things. As stc always seeks to develop and innovate digital systems, the group signed a memorandum of understanding with Microsoft Arabia to cooperate in the areas of digital systems development strategies. The collaboration includes developing a digital platform (MEC) that provides 5G services based on cloud communications - and developing new applications and business models. The memorandum aimed at supporting the fifth-generation services for stc customers, using artificial intelligence (AI) technologies and the huge database which will pave the way for improving the customer experience and enhancing the quality of many instant services. stc is constantly and rapidly expanding the use of cloud technology to maintain its competitive edge, innovation and transform interactions with digital

services. Accordingly, the group signed a five-year collaboration with Cisco to create a unified software-centric cloud services package to ensure enhanced hardware infrastructure, automation, virtual simulation services, and coordination tools. Moreover, stc signed an agreement with Nokia, which included four areas, characterized by the digitization's development, future of work, climate, and society. The agreement was made to raise the quality of the commercial deployment of 1 terabyte channel, which will allow stc Group, through Nokia's PSI-M technology, to continue expanding the range of network capacity as well as support new services related to high bandwidth. The

agreement also aimed at reducing carbon emissions through the application of best sustainability practices. stc explored the world's experiences on providing better broadband services to a larger number of beneficiaries and at a faster speed, as well as the group showcased its capabilities at levels of automation, including its specialized technologies in data centers and solutions designed in the telecommunications cloud. Furthermore, stc exchanged its experiences with the world on how safety, productivity and efficiency affect the operational performance of companies and highlighted critical communication network solutions and technologies which are the basis of

digital transformation. Over the four days of MWC, stc recorded a remarkable presence among the largest telecommunications companies in the world and presented its digital infrastructure achievements, the uses of fifth generation technologies, most notably cooperation with robots, linking ports to the fifth generation network, applying virtual stadiums, financial technologies and sustainability experiences, as well as discussed technological changes, trends, drivers and the potential opportunities for societies and economies, while addressing the global challenges such as sustainability, cybersecurity and digitalization.

## stc and Virgin Mobile KSA Agreement to Extend Mobile Virtual Network Services



stc and Virgin Mobile Saudi Consortium LLC "Virgin Mobile KSA" signed a long-term agreement to continue their strategic relationship. Both companies were represented by Mohammed Alabbadi, Chief Wholesale Officer of stc and Yaroob Al-Sayegh, CEO of Virgin Mobile KSA. This agreement comes as an amendment to extend the Mobile Virtual Network Operator Agreement, which was established in 2014. Under this extension stc will continue to provide Mobile Virtual Network services to Virgin Mobile KSA, along with some new terms in line with the market

changes and dynamics of the digital era. The new terms provide Virgin Mobile KSA with more strength and capabilities to answer the local market demand now and in the future. This agreement comes as a continuation and confirmation of the successful strategic partnership between the two parties that started in 2014, when Virgin Mobile launched its services as a virtual network operator in the Kingdom of Saudi Arabia, while using stc's network. Under this appendix, Virgin Mobile KSA will continue to provide telecommunication services to its customers through stc's

mobile network that covers wider areas through advanced technologies for the upcoming years. This partnership will also contribute to expand Virgin Mobile KSA's reach and the spread of its technology services throughout KSA, as well as enabling all society segments to benefit from the high-quality services made available at competitive prices. "stc is keen to build such successful partnerships with strategic associates. We are pleased to collaborate and extend our provisioning, as stc constantly seeks to be the preferred partner to such huge corporations locally, regionally and internationally. We are also pleased to serve the industry in KSA through our capabilities all the while supporting Virgin Mobile's vision. With this partnership, the two ends will expose their mutual competences to contribute to KSA Vision 2030", said Mohammed Abdullah Alabbadi, Chief Wholesales Officer, stc. Adding from his side, Yaarob Al-Sayegh, CEO of Virgin Mobile KSA said, "Extending the agreement with stc will provide powerful growth opportunities and development tools, as well as the capacity to expand our services and products. We plan to move into new technology fields in the local market, with the aim of doubling our existing customer base and enhancing our consumers' experience."

# stc Develops 16 Data Centers; Bahrain's is the Largest



With the Middle East region seeing a paradigm shift in development and improvement of digital infrastructure, stc has played a pivotal role in accelerating the stages of this digital transformation and adopting emerging technologies that have promoted growth and maturity of digital-enabling cloud services across the region. stc's overall strategy has underlined the need to boost its position as a leading digital cloud enabler in the region by launching a global data center project. Through this project, the group aims to improve and provide a world-class management of its cloud infrastructure and technical, security and communication services. Recently, stc announced creation of data centers at several Gulf markets. stc Bahrain signed an agreement with the Bahraini Ministry of Transportation and Telecommunications to establish the largest data center spanning 55,000 square meters as one of the early energy-efficient initiatives. This step can encourage local creators to take a step forward towards the use of renewable energy and push for new horizons for digital transformation. It also helps leverage and diversify the local economy, which is in line with Bahrain's Economic Vision 2030. Another initiative announced by stc is MENA Hub; a major digital hub for the Middle East and North Africa (MENA) region. With an investment of $1 billion, the hub will be created in cooperation with regional and international partners, highlighting the Saudi leadership

in the ICT sector and the great potential of stc as the biggest telecommunications company in the Middle East and promoting economy and GDP growth in the Kingdom. Connecting three continents, the hub is utilizing the Kingdom's strategic location to scale up investments in international communication services and data centers. Investing in a fiber optic grid, the project entails installation of highly efficient cables to meet the future cloud needs and ensure uninterrupted service. Building the largest data center project in the Middle East, stc aims to enable digital transformation in the government and private sectors through digital economy, artificial intelligence, the Internet of Things, computing and automation according to KSA Vision 2030. The project consists of 16 data centers with 17,000 storing units serving 8 parallel sites spread over 6 cities with a maximum capacity of 125 MW. It seeks to double the current digital capacity to more than 300 MW in a quick response to demand in the local market. The project consists of 3 phases: 3 data centers in Riyadh, Jeddah and Medina in first phase, 4 in the second and the rest in the third phase to make up a total of 16 centers. The Group has announced an agreement with Alibaba Cloud to invest $500 million in cloud services. stc has recently received a cloud service provider certificate to be the first globally accredited Saudi company in this field. The Group's Digital Operations Control Center in Riyadh is the

largest integrated operation center in the region. Connected to more than 4 marine cables, the center operates the largest international portals, with a capacity of more than 8.4 tbps. It contains the latest protection and distribution systems in the world used for the first time in the region to protect company service system in general and the service and solution system for transfer of data and audio services for all customers. The center also includes the largest cybersecurity operations center in the region. Through data centers, stc offers its cloud services that enable customers from government and private sectors, including SMEs, to store data outside the personal device in a safe and reliable environment. It also uses capacities that are tailored for customer's needs without having to build a data center and cloud computing systems. It also enables upsizing or downsizing the range of capacity according to the technical needs of each company. It provides integrated protection for preservation of stored data and applications. Data centers also contribute to digital services, games and e-sports, online streaming services, content service operators and other digital platforms. Looking ahead into the future, stc wants to localize this important sector. It has signed an agreement with Huawei to explore the possibility of bringing a local facility to the Kingdom for data center manufacturing. Once it starts operation, this facility will help develop the data center sector and localize its industry in the Kingdom, through transfer of global knowledge, technology and expertise from Huawei in cooperation with local manufacturers. With this step, stc seeks to provide data center equipment locally and at a lower cost, thus keeping pace with technologies globally and creating new local industries and an attractive environment for business and technical innovation. This will, in turn, support significant support for the local content and help achieve the goals of KSA Vision 2030.

# stc Earns the Excellence GTI Award and Signs Innovative Technology Partnerships

stc Group, the Saudi digital enabler in KSA and the region, earned the Excellence Award organized by the Global TD-LTE Initiative (GTI), for its contribution to the innovative "Smart IoT Ecosystem". The award was announced during the "GTI Online Summit 2022" that was held as part of the Mobile World Congress (MWC22) event in Barcelona. stc was presented and honored through this award for its dedication towards its significant contribution to providing innovative mobile services, applications, and solutions enabled by 4G, 5G and Enterprise Network Solutions technologies for consumers and verticals. Furthermore, stc signed a number of partnerships with the world's leaders of the communications, networks and information technology industries, during its participation in the Mobile World Congress (MWC22) in Barcelona. The partnerships with Ericsson, Nokia, Huawei, Intel, Cisco and Microsoft, were the most prominent, in addition to other companies, in a step to expand and develop 5G networks, cloud services, edge computing, and accelerate the open digital infrastructure, as well as to establish a "Disaster Recovery Data Center", that aims at enhancing the customer experience and enabling the Kingdom's digital transformation. stc's agreements with Ericsson focused on researching the capabilities of 5G network technologies, enhancing network performance and supporting its deployment in the Kingdom, which will provide stc subscribers with higher data speeds, as well as enabling a range of new applications with low response time, and transforming the current structure into an open digital structure to support Innovative services for the fifth-generation network and the Internet of Things. As stc always seeks to develop and innovate digital systems, the group signed a memorandum of understanding with Microsoft Arabia to cooperate in the areas of digital systems development strategies. The collaboration includes developing a digital platform (MEC) that provides 5G services based on cloud communications - and developing new applications and business models. The memorandum aimed at supporting the fifth-generation services for stc customers, using artificial intelligence (AI) technologies and the huge database which will pave the way for improving the customer experience and enhancing the quality of many instant services. stc is constantly and rapidly expanding the use of cloud technology to maintain its competitive edge, innovation and transform interactions with digital services. Accordingly, the group signed a five-year collaboration with Cisco to create a unified software-centric cloud services package to ensure enhanced hardware infrastructure, automation, virtual simulation services, and coordination tools. Moreover, stc signed an agreement with Nokia, which included four areas, characterized by the digitization's development, future of work, climate, and society. The agreement was made to raise the quality of the commercial deployment of 1 terabyte channel, which will allow stc Group, through Nokia's PSI-M technology, to continue expanding the range of network capacity as well as support new services related to high bandwidth. The agreement also aimed at reducing carbon emissions through the application of best sustainability practices. stc explored the world's experiences on providing better broadband services to a larger number of beneficiaries and at a faster speed, as well as the group showcased its capabilities at levels of automation, including its specialized technologies in data centers and solutions designed in the telecommunications cloud. Furthermore, stc exchanged its experiences with the world on how safety, productivity and efficiency affect the operational performance of companies and highlighted critical communication network solutions and technologies which are the basis of digital transformation. Over the four days of MWC, stc recorded a remarkable presence among the largest telecommunications companies in the world and presented its digital infrastructure achievements, the uses of fifth generation technologies, most notably cooperation with robots, linking ports to the fifth generation network, applying virtual stadiums, financial technologies and sustainability experiences, as well as discussed technological changes, trends, drivers and the potential opportunities for societies and economies, while addressing the global challenges such as sustainability, cybersecurity and digitalization.

# e& Partners with Meta to Drive Innovation as It Accelerates Its Transformation to a Techco

As part of e&'s transformation drive to become a global technology conglomerate, the Group today announced a strategic partnership roadmap with Meta. The collaboration will enable e& to become a leading techco player driving innovation, enhancing organizational performance and nurturing its internal culture across its footprint. e& (formerly known as Etisalat Group) and Meta will work together on use cases that integrate with the latest Meta products and solutions, consumer channel digitalization, enhancing Augmented Reality (AR) and Virtual Reality (VR) experiences and conversational commerce throughout its digital communication plans. As part of its strategy, e& will elevate its global positioning by zoning in on creative development and automation, immersive experiences and strategic partnerships. Internally, there will be a group-wide effort in driving a more productive work culture by creating customized learning paths and certifications, training and workshops, implementing robust internal communications plans, and heightening workplace collaboration. "Our partnership with Meta is in line with our ambitious goals of creating limitless possibilities built on connections, connectivity and collaboration," said Hatem Dowidar, CEO, e&. "We are developing strong partnerships and identifying new growth opportunities as we advance our transformational journey for the benefit of our customer segments and shareholders. We look forward to a fruitful collaboration with Meta as we continue to create a more progressive

business model that supports our growth aspirations to stay fit for the future. "An important element in our partnership with Meta is to design powerful, seamless digital experiences for all our customers so that they are empowered to advance their own digital transformation agenda with our support. Our advanced 5G network will ensure that we provide a platform that will combine multiple technologies to bring the internet to life and help our customers embrace a digital-first lifestyle more efficiently." Commenting on the partnership Fares Akkad, Regional Director for MENA, at Meta said:" At Meta, we're focused on continuing to build innovative products and tools, so we can keep helping businesses and partners connect with people. We are excited to work with e& to further grow their digital transformation journey and leverage Meta technologies to benefit their customer base." Etisalat Group has changed its brand identity to e&, effective from 23 February 2022. Its strategy aims to accelerate growth through the creation of a resilient business

model representing the Group's main business pillars. The Telecoms business currently continues to operate led by Etisalat UAE in e&'s home market and by existing subsidiaries for international operations, upholding the Group's rich telecoms heritage, bolstering the strong telecoms network and maximizing value for the Group's various customer segments. Ramping up the digital services for individual customers to elevate their digital-first lifestyle, e& life brings next-generation technologies through smart connectivity platforms in entertainment, retail and financial technology. To enable the digital transformation of governments, large-scale enterprises and corporates, e& enterprise focusses on maximizing value through its end-to-end solutions in cybersecurity, cloud, Internet of Things (IoT) and Artificial Intelligence (AI), as well as deploying mega projects. e& capital allows the Group to focus its efforts on driving new mergers and acquisitions while maximizing shareholder value and strengthening global presence.



# e&'s AGM Approves a Dividend Per Share for H2 2021 of AED 0.4, Representing a Total Dividend of AED 0.8 Per Share for FY2021

e& (formerly known as Etisalat Group) held its Annual General Meeting (AGM) where shareholders approved the recommendation from the Board of Directors to distribute cash dividends to shareholders for the second half of 2021 at a value of AED 0.4 per share, representing a total annual dividend of AED 0.8 per

share. During the meeting, the Board praised e&'s efforts in accelerating its digital transformation in an ever-changing business landscape. In light of its recent transformation into a global technology conglomerate, e& was commended for seizing different opportunities to create a more progressive business model that

realizes the Group's vision of impacting the lives of its customers and shareholders alike. H.E. Jassem Mohamed Bu Ataba Alzaabi, Chairman of e&, thanked the board members for their support. He emphasized that e& will continue to be the digital champion that drives change for the empowerment of societies. "As we enter

**Latest Dividend**

**0.40** AED per share
Ex-date: 14/04/2022
Pay date: 25/04/2022
Type: Final

**Dividend Yield**

**2.80** % dividend yield [1]

**0.80** AED 12-month dividend

**Annual Dividend, AED**



**Annual Dividend Yield [3], %**



1 - Based on the closing share price on the dividend payment date
2 - Dividends reinvested
3 - Based on dividends paid out during the fiscal year and closing share price on the dividend payment date

the next chapter of our journey, we are confident that we will continue to witness even greater success as we continue to create an environment with limitless possibilities built on solid foundations, smart connectivity and fruitful collaborative opportunities." H.E. Jassem Mohamed Bu Ataba Alzaabi highlighted a series of achievements that has enabled e& to begin a new chapter, in line with its ambitious strategy to amplify business growth across different segments. The Group was named the strongest telecoms brand in the world in January 2022, and also topped the Forbes MENA Top 10 most valuable listed companies in the UAE. It reported a solid net profit of AED 9.3 billion, an increase of 3.2% year on year. It also saw a 3.0% increase in its aggregated subscriber base, rising to 159 million. e& has also maintained the UAE's network leadership with one of the fastest and most advanced networks in the world for the second year, and global FTTH penetration leadership. H.E. Jassem Mohamed Bu Ataba Alzaabi stated that value creation remains at the core of the work e& does as it continues to lead the change for growth. "We've already witnessed a defining moment in our history through our transformation as e&, thanks to the strong financials and standing in the market. Our growth mindset will continue to guide us forward as we refocus our efforts on investing in breakthrough technologies, accelerating in-depth market penetrations and capitalizing on

solid ventures with key industry players. "We have worked tirelessly to come this far, thanks to the support of the UAE leadership to the telecom sector, and we will do what it takes to ensure that our solutions positively impact people's lives at every touchpoint. This is in line with our vision for e& to 'Make Possible'. Enhancing customer experiences and digitally empowering societies will continue to be the driving forces in everything we will achieve in the future." During the meeting, Hatem Dowidar, GCEO of e& shared that the Group's strong financial performance resulted from successful international operations and steady improvements in domestic operations despite persistent challenges in the markets where it operates. He said: "This has been an exceptional year for us as we delivered solid financial performance and business growth across all our operations in 2021. The Group's consolidated revenues increased by 3.2% to AED 53.3 billion and consolidated net profit amounted to AED 9.3 billion, representing a 3.2% increase year-on-year. Our consolidated EBITDA amounted to AED 26.7 billion, representing a year-on-year increase of 1.0% which resulted in an EBITDA margin of 50.1%. Dowidar spoke at length about the efforts undertaken by the Group on acquisitions and in pursuit of strategic partnerships for future business growth. Its acquisition strategy is driven by the Group's relentless commitment to provide innovative solutions for the

benefit of all customer segments and offer long-term sustainable value for our shareholders, he said. "We've come this far because we have capitalized our efforts in providing outstanding customer services at all times even with the rapid changes the business landscape is seeing. We've already invested in future technologies to continue enhancing our customers' experience." As part of its strategy, e& will enhance customers' experiences across all segments by ideating, designing, and delivering a range of innovative and breakthrough technologies, driven by its track record of success. This strategy is aimed at accelerating growth through the creation of a resilient business model that is representing the Group's main business pillars. Telecoms will continue to retain the previous branding identity while upholding the Group's rich telecoms heritage, bolstering the Group's strong telecoms infrastructure and maximizing value for its customer segments, in the UAE and internationally. In addition, it will expand into new geographic markets while continuing to drive operational performance in the 16 markets where it operates. e& life is focused on enhancing customer delight by becoming an integral part of the lives of its customers. The business pillar has already made robust plans to deliver next-generation technologies and digital experiences that will bring the world to the customers' fingertips through smart connectivity platforms in entertainment, retail and financial services. e& enterprise will be the driving force behind the digital transformation of governments, corporates and enterprises. Through its breakthrough technology solutions in cybersecurity, cloud, Internet of Things (IoT) and Artificial Intelligence (AI), as well as deploying mega projects, e& enterprise will create real business value as it continues to leverage its expertise as a digital managed company having the strength and reach of a global trusted partner. Maximizing shareholder value while strengthening global presence is key to the e& strategy to empower societies. e& capital will act as a pillar for growth for the Group as it drives new acquisitions and mergers in line with its vision for investing in ideas that make the future.

# Etisalat UAE, Part of e&, Launches First Global Live Multi-Vendors VoNR Ecosystem in Collaboration with Ericsson and Huawei

Etisalat UAE, part of e& (formerly known as Etisalat Group), in collaboration with Ericsson and Huawei, announced the successful deployment and testing of the first E2E live multi-vendor VoNR (Voice over New Radio) ecosystem worldwide. The launch marks an important milestone for the UAE's digital transformation objectives. VoNR is a call service that uses the stand-alone architecture of the 5G network, providing lower latency and improved quality, resulting in an elevated calling experience and high-speed data. VoNR Call has been made and verified over a live multi-vendor ecosystem consisting of Core and Radio 5G SA related nodes from both Ericsson and Huawei. This innovative milestone is an important step towards the commercial introduction of seamless 5G voice services in e&'s cloud-native network. Khalid Murshed, Chief Technology and Information Officer at Etisalat UAE, said: "The launch of VoNR is in line with e&'s vision to bring the best in digital technologies, smart connectivity and innovative solutions to all our customers. With Ericsson and Huawei as our strategic partners for this project, we will maximize opportunities to further enhance the end-user communication experience by ensuring better voice continuity and quality. Today, handset manufacturers are keen to massively launch VoNR enabled devices in the market for which e& is pleased to have its network-ready fulfilling the requirements of complete live multi-vendors ecosystem." Ekow Nelson, Vice President Ericsson Middle East & Africa, said: "Over the past years, voice calling has become a key service in the UAE. As the UAE is driving ever-more digitalization powered by 5G, high quality and seamless voice calling will become a must-have service for residents across the nation. With the launch of Etisalat UAE's first VoNR service, we are proud to play a continued role in helping the UAE realize its digital transformation objectives. We remain committed to providing network excellence to ensure the nation is equipped to offer the numerous digital opportunities that 5G will bring to the region." A spokesperson at Huawei said: "As 5G SA coverage expands within UAE, the demand for better voice quality with best possible experience is inevitable on 5G Core. This is why VoNR will be the key to further improve the customer's confidence trusting voice continuity in 5G coverage areas. Huawei, is fully committed to assist Etisalat on this digitalization journey and would feel privileged to work with Etisalat to help them achieve their goals." Etisalat UAE's (part of e&) customers will benefit from 5G stand-alone data browsing with ongoing voice calls, superior quality 5G voice services through "HD voice +", faster call set-up, as well as robust security to prevent fraud and misuse of personal data. VoNR Enhanced Voice Services technology also removes voice distortion, water noise or any other types of voice disturbance that customers would have faced in the past. It is expected that new services will be rolled out through the VoNR ecosystem, such as accessing real-time mobile interactive gaming and voice call at the same time, exchanging secure media content during the voice call and experiencing interactive augmented and virtual reality. Etisalat Group has changed its brand identity to e&, effective from 23 February 2022. Its strategy aims to accelerate growth through the creation of a resilient business model representing the Group's main business pillars. The telecom business currently continues to operate led by Etisalat UAE in e&'s home market and by existing subsidiaries for international operations, upholding the Group's rich telecoms heritage, bolstering the strong telecoms network and maximizing value for the Group's various customer segments. Ramping up the digital services for individual customers to elevate their digital-first lifestyle, e& life brings next-generation technologies through smart connectivity platforms in entertainment, retail and financial technology. To enable the digital transformation of governments, large-scale enterprises and corporates, e& enterprise focuses on maximizing value through its end-to-end solutions in cybersecurity, cloud, Internet of Things (IoT) and Artificial Intelligence (AI), as well as deploying mega projects. e& capital allows the Group to focus its efforts on driving new mergers and acquisitions while maximizing shareholder value and strengthening global presence.

# e& Builds Transformation Momentum, Enters New Phase of Collaboration with Microsoft

Following its recent transformation announcement and embracing of a new identity, e& (formerly known as Etisalat Group), expanded its partnership with Microsoft, entering the next phase of collaboration that will see the two companies accelerate value creation, push the boundaries of innovation, and achieve more for the benefit of their customers. Under a partnership agreement, the parties will enhance a long-term strategic collaboration, embarking on e&'s journey to go beyond the realms of traditional telecommunications to transform the lives of its customers and advance the digitalization journey of enterprises. Senior executives met at the Microsoft headquarters in Redmond to seal the partnership, including Hatem Dowidar, CEO, e&, Satya Nadella, Chairman and CEO, Microsoft, Sayed Hashish, General Manager of Microsoft UAE and Masood M Sharif Mahmood, CEO, Etisalat UAE. "Our partnership with Microsoft is an example of synergy in action," said Hatem Dowidar, CEO, e&. "e& is combining one of the world's fastest 5G networks with Microsoft's cloud, AI, edge and data services, addressing a regional market hungry for digital transformation. We are confident that this collaboration will continue to support the ever-growing demands of this market and our digital journey of transformation and innovation. This also supports our ambition to become a world-class technology provider that supports regional innovators as they disrupt, make a difference and build the future."

## Collaboration structured around impactful pillars

The agreement, which is e&'s first strategic partnership alliance after its repositioning, will focus on e& harnessing the versatility of the Microsoft Cloud and partner ecosystem to create new solutions, accelerate value creation for businesses of all sizes, as well as engage customers and empower e&'s employees. The collaboration between the organizations will be structured around three strategic pillars:

- Focus on business-to-business engagement across large enterprises, governments, small and medium-sized businesses, by helping them in their digital transformation journey.
- Re-invention of the consumer experience, with a focus on empowering consumers, broadening, and enriching the e& services portfolio.
- Setting the foundations to power e&'s transformation journey by modernizing networks and platforms, building ecosystems and transforming the e& culture to attract top talent.

"The United Arab Emirates has fully embraced digitization with an impressive speed and vision," said Judson Althoff, Executive Vice President and Chief Commercial Officer, Microsoft. "Our strategic partnership with e& emphasizes the role that Microsoft's comprehensive and trusted cloud plays in our customers' digital transformation, bringing together the unique capability of networks, hyperscale infrastructure and partner solutions to drive economic growth, sustainability, and societal wellbeing. e& has made a commitment to continuously innovate, and we are proud of the role Microsoft is playing as part of this journey."

## Partnership built on strong foundation of joint successes

e& and Microsoft have been strategic partners for many years, playing a key role in the UAE's transformation into one of the world's smartest nations. In 2019, Microsoft launched its much-anticipated UAE data centers in collaboration with e&. At the height of the pandemic in 2020, Etisalat UAE, the telecoms pillar of e& in the UAE collaborated with Microsoft to enable Microsoft Teams availability across the UAE. Soon after, e& launched its first customer service powered by Microsoft Azure, enabling SMBs to grow and scale their operations. Last year, it partnered with Microsoft for 5G and Edge to lay the foundations for next-generation use cases. In 2021, e& enterprise was named Microsoft Country Partner of the Year for the UAE in recognition for providing outstanding solutions and services to customers in strategic industries such as government, healthcare, and financial services. e& enterprise has also been instrumental in accelerating customer journeys on remote working during the COVID-19 pandemic by offering Teams Direct Routing as a service, to help save costs and enable business continuity for multinationals.

# Mobily Joins Group to Build 19,200 Km Undersea Cable System

Etihad Etisalat Company (Mobily) has become part of the Southeast Asia - Middle East - Western Europe 6 (SEA-ME-WE 6) consortium to build a 19,200 km-long undersea cable system linking Saudi Arabia with 10 other countries. This new system will enhance Mobily's global network connectivity and offer one of the lowest latencies available between Southeast Asia, the Middle East, and Western Europe, transferring more than 100 terabits per second. Furthermore, it will create an additional layer of network diversity and resiliency for the heavily loaded traffic from the Middle East toward Europe and Asia. This announcement comes in line with Mobily's effort to enable

the digital transformation journey of the Kingdom's Vision 2030 by empowering businesses with reliable infrastructure and stronger, far-reaching connectivity to provide digital services that are on par with international standards. "Our investment in SEA-ME-WE-6 is a pivotal step toward achieving unparalleled global connectivity to Saudi Arabia's digital ecosystem and to support the kingdom's vision of becoming an international hub of telecommunications services and traffic. This new state-of-art system will bring faster and more reliable connectivity to all of our users in the kingdom, and the region, as the demand for high-speed data is rising due to the digital transformation and development of emerging technologies such as 5G, IoT, artificial intelligence and virtual reality," says Eng Thamer Alfadda, Mobily's Senior Vice President of Carriers, Operators, and Wholesale Services. In addition to Mobily, the SEA-ME-WE (6) consortium includes Singtel (Singapore), Telekom Malaysia, Telin (Indonesia), Bangladesh Submarine Cable Company, Bharti Airtel Ltd. (India), Sri Lanka Telecom, Dhiraagu (Maldives), Trans World Associates (Pakistan), Djibouti Telecom, Telecom Egypt, and Orange (France). The SEA-ME-WE 6 submarine cable will land at Mobily's new international cable landing station in the city of Yanbu. Its strategic red sea location, nearby Data Centers and Saudi Vision 2030 projects, positions it as one of the key cable landing sites for Saudi Arabia and the region.

# Mobily Pay Awarded License to Offer Digital Payments and E-Wallet Services

Etihad Etisalat Company (Mobily) announced that Etihad Fintech Company (Mobily Pay) has been licensed by the Saudi Central Bank (SAMA) to conduct Payments and E-Wallet Services, offering leading individuals and corporates financial services. The announcement came on the sidelines of the Global Entrepreneurship Congress (GEC), held in Riyadh under the auspicious patronage of His Royal Highness Prince Mohammed bin Salman bin Abdulaziz, Crown Prince of Saudi Arabia. Licensing Mobily Pay by SAMA aligns with Mobily's strategies to diversify services and business portfolio across industries, with Fintech being a key pillar of the strategy. Mobily Pay, as per the license, will offer users digital financial services; including sending and receiving money transfers within Saudi Arabia and beyond, bill payments, bank card issuance; while optimizing customer experience, and offering them user-friendly, efficient, and convenient digital channels to conduct their transactions. "We express our utmost gratitude to the Custodian of the Two Holy Mosques King Salman bin Abdulaziz and HRH Prince Mohammed bin Salman bin Abdulaziz, Crown Prince of Saudi Arabia for the multitude of programs and initiatives that are boosting the growth and progress of the Saudi economy; such as the Financial Sector Development Program as part of Vision 2030," said Eng. Salman Al-Badran, CEO of Mobily. "I would also like to thank H.E. Fahad Al-Mubarak, Governor of the Saudi Central Bank, H.E. Dr. Fahad Ibrahim Al Shathri, Deputy Governor for Supervision, as well as the Department of Supervision of Payment Systems and Companies at SAMA for their unlimited support and cooperation to support Fintech companies." Mobily Pay is a wholly owned subsidiary of Etihad Etisalat Company (Mobily); established to address customers' needs by offering comprehensive individual and corporate Fintech solutions. Mobily Pay solutions are set to be made available to all customers across the Kingdom through major application stores on smart devices, with more details about the launch of the company's offerings coming soon. "At Mobily, we set our strategy based on various digital transformation channels; striving to further drive the digitization and modernization efforts in Saudi Arabia as part of Vision 2030. The licensing of Mobily Pay is an indication of us being on the right track of growth and development across various industries, to support the Kingdom's achievements in the fields of communication and technologies, while embodying Mobily's capabilities to offer new and innovative services in telecoms and Fintech," added Eng. Al-Badran.



Mobily Pay receives the Saudi Central Bank's license to conduct payments and Electronic Wallets Businesses

حصلت شركة Mobily Pay على ترخيص البنك المركزي السـعودي لتقديم خدمات المدفوعـات والمحافـظ الإلكترونيـة.

# Equinix to Build First Data Center in Salalah in Partnership with Omantel

Equinix, Inc., has announced plans to build a brand new data center in the city of Salalah, which is located on the south coast of the Sultanate of Oman in the Middle East. The data center is being built in cooperation with Omantel, the regional leading wholesale carrier of the Middle East, and will be commercially and operationally managed in full by Equinix as a carrier neutral and open access Equinix International Business Exchange™ (IBX®) data center. The new site, named SN1, demonstrates Equinix's commitment to Oman and the Middle East region. SN1 will be the second carrier neutral data center to be built in Oman after MC1 in Muscat and will be Equinix's fifth data center in the region alongside strategic sites in Dubai and Abu Dhabi. Once open, SN1 will become a key interconnectivity point for traffic flows between Asia, Europe, and Africa. "We are delighted to extend our successful partnership with Equinix through establishing this new international subsea cable hub in Salalah, which is strategically located in the south of Oman, on the coast of the Arabian Sea". Talal Al Mamari, Chief Executive Officer of Omantel stated. "Salalah is the rising star of the Middle East for Asia to Europe and Africa subsea cable systems passing the region and is quickly establishing itself as the new main regional strategic interconnection point. Salalah will be the hub for a connectivity ecosystem much needed to meet an ever-increasing demand for onwards connectivity to the Middle East and Africa". Mr. Al Mamari concluded. By shortening the length and route of many highly strategic and important cables in the region, the new SN1 site in Salalah will change the landscape of global traffic flows by creating a much more cost-effective route to connect businesses to the Middle East. The new site will also offer direct fiber links to Equinix's MC1 in Muscat, the first carrier-neutral hub in the Middle East, and enables carriers, content providers and cloud providers to co-locate critical IT infrastructure in the region. "We are seizing on this fantastic opportunity to invest in Salalah by building a world class data center that will undoubtedly change the landscape of global traffic flows between three major continents." Said Kamel Al-Tawil, Managing Director of Equinix Middle East and North Africa. "With access to several new and existing submarine cables, this major new interconnectivity point continues Equinix's strategy of developing network-dense and interconnectivity-rich ecosystems." He added. The SN1 facility is the latest subsea landing site in a string of strategic subsea investments for Equinix. In December 2021, the company announced it had been selected by SUB.CO for the hosting of the 9,800-kilometre Oman-Australia Cable (OAC) into its International Business Exchange™ (IBX®) data centers in Perth, Australia and Muscat, Oman. Additionally, during 2021, Equinix opened similar cable hosting sites in Genoa and Bordeaux as well as announced the opening of significant subsea connections with EllaLink in Portugal and Brazil.



# Omantel AGM Approves Cash Dividends of 55 Baisas Per Share



Oman Telecommunications Company (Omantel) held its Annual General Assembly Meeting (AGM) Sunday at company's HQs at Madinat Al Irfan, under the chairmanship of Mulhim bin Bashir Al Jarf, Chairman of Omantel Board of Director in the presence of board members, external auditors of the company, the legal advisor, the observer of the Capital Market Authority and the shareholders. During the meeting, the shareholder approved a proposal to distribute cash dividends to registered shareholders as of March 27, 2022 (55 Baisas per share). Omantel AGM also approved the Chairman's Report on the company activities and financial performance for the fiscal year ended 31st December 2021. The meeting also considered and approved the company corporate governance report, auditors' report on the audited financial statements for the financial year ended 31st December

2021 at which the company net profit after adjusting for minority interest stood at RO 67.1 million. Commenting on this, Mulhim bin Bashir Al Jarf, Omantel Board of Directors Chairman said, "Despite the challenging market conditions, increased competition and challenges resulting from the COVID-19 pandemic at the local and international levels, Omantel Group achieved a good financial performance during 2021." "Zain Group, in which Omantel has a strategic stake, continued delivering good performance and growing its net profit despite decline in revenues and EBITDA. Zain Group achieved a net profit growth of 2% compared to the same period in 2020. Moreover, the contribution of Omantel's subsidiaries in the Sultanate to the Group's revenues increased during the past year compared to the same period in 2020", he added. "The Covid-19 outbreak continues to have a profound impact on the global and local economies as well as the telecom sector in specific. Following the acceleration of vaccination programs, the expectation of a return to normal is growing and the domestic economy is expected to gradually return back into a growth scenario. While it is hoped that the local economy will gradually return to achieving

growth, the increased competition at the local market resulting from the entry of the third mobile operator, as well as cross-border competition through OTTPs, requires us to always be prepared for such changes", he concluded. On his part, Talal bin Said Al Mamari, Omantel Chief Executive Officer, said, "Omantel has implemented its new continues to be our primary tool to optimize value generation for both our customers and shareholders. Shift Gear builds further on the key transformation initiatives started under 'Omantel 3.0' and focusses on a number of key business enablers including Omantel's transition to a digital operator, building on the company's position and leveraging the Sultanate's strategic position as a global communications hub, in addition to exploring new areas of growth from new business opportunities, primarily in the ICT and value added services domain, while at the same time continuing to implement stringent controls in spending to assure the impact of Covid-19 is minimized while continuing to invest in essential strategic domains. "Customer experience and innovation have been two main areas of focus for Omantel during 2021. We continued to launch several initiatives in

this regard, including the launch of 5G for mobile devices, the expansion of the 5G for fixed and mobile networks and building an integrated system for innovation and technology entrepreneurship through the launch of Omantel Innovation Labs, Omantel's Innovation Oasis and the "E-Dukaan", the first unmanned store in the Middle East region", he furthered. With regard to social responsibility, Al Mamari said: "Omantel focused in 2021 on providing support to the deserving families and those affected by tropical cyclone "Shaheen" last October. The company also launched selective initiatives aimed at strengthening digital transformation and building the capabilities of a digital society. Omantel issued this year its fifth sustainability report, which covered Omantel performance in social, economic and environmental aspects". Omantel's AGM also approved the other items listed on the meeting agenda, the most important of which is approving the allocation of RO 500,000 for community service during 2022, appointing an auditor for the fiscal year ending December 31, 2022 and setting their fees, and approving the Board of Directors' remuneration for the fiscal year ending December 31, 2022.

# Omantel and Rihal Sign an MoU to Benefit from RPA Solutions

Rihal, an Omani company specialized in providing data migration and management solutions, organized a ceremony at its head office in Muscat, for signing a Memorandum of Understanding (MoU) with Omantel for providing a comprehensive training program in the field of robotic process automation (RPA) to a group of young people who are enrolled in the "Generation Z" program, an annual training program for graduates offered by Omantel to train a group of the program members on robotic automation in various fields. The MoU aims to support the efforts made to empower Omani youth and enhance their skills in the field of future technologies. The MoU was signed by Azzan bin Qais Al Kindi, CEO of Rihal, and Eng. Sami bin Ahmed Al Ghassani, Chief Operating Officer of Omantel, in the presence of officials from both sides. Commenting on this MoU, Sami bin Ahmed Al Ghassani, Omantel's Chief Operating Officer said:



"Omantel is proud of the capabilities of the Omani youth that qualify them to lead the next phase of the Renewed Renaissance and achieve the ambitions set out in Oman Vision 2040". "We at Omantel give special

importance to the Omani youth because we believe that they have the capabilities and energies that push them to be creative and innovative in various fields. For this reason, Omantel has invested

in creating a conducive environment that suits their aspirations and develops their skills. The "Generation Z" program reflects Omantel's vision towards youth in terms of empowering them, enhancing their leadership capabilities by providing an environment that helps them to gain hands-on experiences, identify challenges, and come out with practical solutions, he added. "Life is moving at a fast pace due to rapid successive modern technologies and developments. Young people have proven that they are the best to keep pace with such developments and modern technologies. For this reason, we are pleased to join hands with Rihal to train a group of trainees of the Generation Z program in RPA to add to their experience and knowledge. In turn, Azzan bin Qais Al Kindi, CEO of Rihal, said: "This cooperation between Rihal and Omantel aims to enhance cooperation, share practical knowledge and experiences and develop future skills among Omani youths. In response to a question about Rihal's role in the training plan, Al Kindi noted that RPA is one of Rihal's core areas of expertise. The Process Automation department will provide the trainees with a comprehensive training program that will help them gain knowledge and develop their career in one of the booming industries in the current digital economy." It should be noted that RPA technology, which is part of Omantel's operations, is one of the services provided by Rihal. The technology reduces time and effort with high efficiency. The training program will help the training keep abreast with the developments in the field of information automation. It will also complete the RPA program, which already started at Omantel.

# Orange Jordan and int@j Launch "Inspiring Change Through Digital World" Award

Under the umbrella of the SHETECHS initiative, Orange Jordan and the Information and Communication Technology Association (Int@j), launched the "Inspiring Change through Digital World" award, to celebrate and encourage women entrepreneurs in the ICT sector. The projects will be evaluated by a specialized jury to select 3 winners among all the applicants. The criteria for participating in the award include that the female applicant has an innovative idea, and is the founder, partner, CEO or MD in a startup or project based in Jordan. The projects selected should have the potential for a sustainable social and environmental impact, in addition to being innovative and competitive, and either at the growth stage or ready to implement a prototype. CEO of Orange Jordan, Thierry Marigny reaffirmed the company's wish to empower leading women in digital development, by appreciating and encouraging their achievements, in addition to enabling more women to harness their potential and achieve excellence, especially in the digital sector. This stems from Orange's role as a responsible digital leader committed to digital inclusion, where gender equality across all areas is one of the company's top priorities. He also noted that Orange continues its work towards gender equity, empowering women both within the company, boosting their professional advancement and reach to leadership positions, and outside the company through sustainable programs across the Kingdom that give women the opportunity to acquire digital and entrepreneurial skills for free, as part of the company's corporate social responsibility strategy. Marigny pointed out that women represent 25.2% of the company's workforce, while 20.9% of managerial positions are held by females, with two women on the executive committee. The company has twice obtained the Gender Equality European & International Standard (GEEIS) by Bureau Veritas, a global standard for promoting a culture of gender equality in the workplace, where the company improved its performance and achieved a score of 4 out of 5. Ruba Darwish, a member of the Int@j board of directors and head of the SHETECHS initiative, stressed the importance of this award to showcase the great efforts made by women in their work and the community, noting that such awards would encourage women in the ICT sector. Darwish stressed the competence and experience of women working in ICT and their ability to innovate and create. Stating that Jordanian women graduates, given their scientific and practical skills, have a prominent role to play in transforming innovative ideas into feasible projects in all sectors, mainly health, education, sustainable development, and technology. Darwish emphasized that the association will continue to work to increase the ratio of female participation in the sector, and facilitate their contribution to the digital economy transition. SHETECHS is an initiative launched by Int@j to connect female graduates with ICT companies, facilitating their job search and ensuring that they have the technical and digital skills needed.

جائزة "ملهمة التغيير" باستخدام العالم الرقمي

# Zain Publishes Its 11th Annual Sustainability Report, Entitled 'A Resilient Journey Across a Challenging Year'



Zain Group announces the publication of its 11th consecutive annual sustainability report, entitled 'A resilient journey across a challenging year'. In the report, Zain summarizes its sustainability-related activities during the year based on its new five-year Corporate Sustainability strategy that is grounded on the UN's Sustainable Development Goals (SDG), with the purpose of being centered on and driven by empowering and establishing long lasting value for the communities it serves. The 11th edition of the report showcases how Zain continues to improve and adapt its activities to align to international best practices and reporting that follows the GRI Standards Framework. Zain is also implementing the Sustainability Accounting Standard Board (SASB) framework for Telecommunications Services. Both standards are externally assured by Ernst & Young (Al Aiban, Al Osaimi and Partners) providing limited assurance. Commenting on the publication of the 11th continuous annual sustainability report, **Bader Al-Kharafi, Zain Vice-Chairman and Group CEO** , *"Throughout 2021, Zain remained unwavering in its determination to drive equitable systemic change in the communities in which it operates by providing access to meaningful connectivity, especially in the face of many socio-economic and environmental challenges, and lasting impacts of the COVID-19 pandemic, which hinders development across the globe."*

*"Nevertheless, 2021 was a significant year for progress with respect to Zain's sustainability, underscored by the many successfully implemented initiatives across our footprint, and highlighted by the upgraded A-score received from CDP indicating our regional leadership in addressing climate change."* **Jennifer Suleiman, Zain Group's Chief Sustainability Officer** commented *"We are all aware of how tumultuous the last couple of years have been to live and work through. Being a customer-focused organization with the responsibility to maintain meaningful connectivity and productivity for 7,000 staff and 50 million customers in an inclusive and equitable manner, was a challenging situation to overcome. The contents of this report highlight how together we have managed that responsibility and supported our communities extremely well under the circumstances. We continue to learn and transition across all of our diverse sustainability activities and are delighted to be pioneering this area across the region."* Zain's five-year Corporate Sustainability strategy formulated in 2020 is centered on four pillars: Climate Change; Social Business; Inclusion; and Generation Youth. It is based on the UN's SDGs, aiming to establish purpose-driven activities anchored in meaningful connectivity to drive equitable systematic change. Qualitative and quantitative targets have been embedded to ensure measurable metrics are set to assess and

track the progress of Zain's sustainability-related activities. The vision is to reduce inequalities, safeguard the planet, foster innovation, and build prosperous communities.

**Highlights from Zain's 2021 Sustainability initiatives**

Most of the sustainability programs implemented by Zain in 2021 addressed the challenges wrought by the pandemic and the company's response to them:

- Expanding digital financial services, providing far-reaching benefits to needy groups within communities in Iraq, Jordan, Saudi Arabia, South Sudan and Sudan, reaching a combined customer base of 1.5 million undertaking 25 million transactions with an aggregate value of USD 2.3 billion in 2021
- Through its value chain, Zain was able to maintain 80,116 jobs.
- The annual Zain Ramadan commercial in partnership with UNICEF entitled, "No one is safe, until we are all safe", addressed the challenge of vaccine hesitancy across the region, with the 2.55-minute-long video going viral and exceeding 10 million views on YouTube, as well as on regional satellite and local TV networks
- In Kuwait, the Shlonik application created by Zain assisted the Ministry of Health to ensure residents adhere to quarantine regulations, with 1.77 million people registering on the app.
- Supporting governments, Zain organized vaccination drives in markets resulting in over 12,000 vaccinations
- Fostering the development of women in Science, Technology, Engineering and Math (STEM), Zain launched the Women in Tech initiative undertaking 256 mentorship sessions across its operating markets
- Zain worked with the Canadian Center for Children Protection to integrate Project Arachnid, software to reduce the availability of child sexual abuse material (CSAM) globally successfully integrated in Kuwait and is currently working on integrating it across other markets

- Launch of a Child Online Safety Booklet in collaboration with UNICEF, promoting safe esports and gaming to schools and universities
- Zain Jordan's Basma Line+, a mobile bundle package, attracted 329 people from the deaf and mute community, while in Kuwait, Zain introduced two postpaid packages dedicated to people with disabilities
- With respect to products for the youth, in Sudan, discounted data bundles reached 6.2 million users

- The Zain Kids platform became available in several markets offering safe online content, reaching 1.6 million children, a quadrupling of child subscribers over the year
- Launch of BE WELL, a Group-wide diversity and inclusion program aiming to foster the mental well-being of employees across operations
- Zain began to measure its water consumption across operations, implementing water reduction initiatives aiming to eliminate plastic

consumption in addition to reducing waste in its warehouses by 50% by 2025
- Zain's climate actions saw the company upgraded to A- in latest 'CDP Score Report - Climate Change 2021', ranking it first in-region and among globally leaders. This ranking is higher than the regional average for Asia of B-, and higher than the Media, Telecommunications & Data Center Services sector average of B-. Additionally, Zain took a major step in expanding its Scope 3 emissions inventory to report more accurately.

# Zain Group Holds Annual General Meeting with a Quorum of 75.14%; Dividend of 23 Fils for H2, 2021 Approved



Zain Group Annual General Meeting (AGM) was held at Zain Group's headquarters in Kuwait, that was livestreamed for shareholders and qualified parties and attended with a shareholder quorum of 75.14%. The AGM approved the recommended cash dividend of 23% (23 fils per share) for the second half of 2021, payable to the shareholders already registered in the company's record as of 6 April 2022. The cash dividends will be paid to eligible shareholders commencing 13 April 2022. This cash dividend of 23

fils per share follows the semi-annual dividend of 10 fils distributed in the second half of 2021, thus totaling 33 fils per share dividend for the year. This third consecutive payment of 33 fils per share on an annual basis completes the company's three-year minimum commitment that started in 2019.

Zain Group Chairman, Ahmed Al Tahous said: The Board of Directors welcomes all shareholders and affiliated parties to the annual General Assembly, and we are pleased to present the Zain Group annual report, available only in digital format. 2021 was a successful year in terms of driving shareholder value given the Board and management's focus on operational efficiency, significant investment in network upgrades, while managing the negative effects of the pandemic on our operations. As economic activity across our footprint generally recovers, Zain is well prepared to exploit the multiple opportunities opening as demand for telecommunications services continues to rise by individuals and enterprises alike. Our 4G and 5G networks, data centers, cloud and other customer facing digital platforms are all future ready and operating at optimal levels. Zain looks forward unlocking opportunities brought by the 4th Industrial revolution, establishing a strong foothold within the government and enterprise sector and providing meaningful connectivity to the communities we serve. We express our sincere appreciation for the confidence shown to us by our valued customers and shareholders, as

well as by all the government ministries and regulatory authorities across our markets given their support in overcoming the challenges of the emerging industry dynamics.

Zain Vice-Chairman and Group CEO, Bader Al-Kharafi said:

The annual dividend payout of 33 fils reflects a 77% payout ratio, one of the highest in the region, providing a clear indication of the strength of Zain's financial solvency and solid operational performance. It also reflects the company's ability to execute on its profitable growth plans despite the continuing challenges of the pandemic and impact of unavoidable currency devaluations on the business. 2021 was a successful year in terms of driving shareholder value given the board and management's prudent execution of our sustainability-conscious 4Sight strategy that empowered Zain to be a leading technology innovator. Promoting digital inclusion is of critical importance for governments and businesses at the present time and Zain continues seeking new lucrative business verticals in the digital arena. Given the presence of the pandemic, digital technologies are being relied upon in a growing manner to bridge the digital divide, prepare the workforce for more innovative jobs in the future, and develop secure digital platforms. Zain Group continues to accelerate investments in new business verticals, being one of the first telcos in the region to provide digital applications and platforms to support enterprises and governments, and it has

continually built on that competitive advantage. We are also creating significant value for shareholders through the unlocking of capital and optimization of infrastructure assets through our tower sale and leaseback strategy. There has been a surge in demand for broadband access due to the pandemic, and Zain has risen to the challenge across its markets. The company continues to diligently deal with other challenges including fluctuations in currency exchange rates, additional taxes, regulatory developments, intensified competition, the rise of unlicensed competitors, and the evolution of purchase patterns and consumer spending. As we seek out new growth opportunities in a sustainable conscious manner, our priority remains to provide world-class telecommunication services to our valued customers while delivering excellent returns to shareholders and maintaining impeccable corporate governance.

# Zain 'Best Mobile Operator' and 'Best ISP' in Kuwait During 2021

Zain, the leading digital service provider in Kuwait, ranked first in the 'Best Mobile Operator' category for the tenth time and the 'Best Internet Service Provider' category for the sixth time in Kuwait for the year 2021 by Service Hero, the Arab World's only 100% consumer powered customer satisfaction index. The announcement was made during the virtual event held by Service Hero, featuring the participation of many industry leaders, executives, public figures, and private sector representatives. The Index celebrated the companies that received the highest scores from consumers in recognition of their world-class service level and quality, each in their respective industries. Zain came on top of the categories under the telecommunications sector. Zain ranked first for achieving the highest customer satisfaction scores by providing the best quality service standards to the Kuwaiti market. The award came after an in-depth evaluation by Service Hero's independent advisory council, which recognized Zain's leadership in offering the best innovative digital services, as well as its relentless pursuit of excellence and innovation with the aim of achieving superior digital lifestyle transformation for its customer base, considered the biggest in Kuwait. Zain received the two awards for achieving high rates of customer satisfaction. The recognition from Service Hero for the tenth and sixth times demonstrates Zain's commitment in providing its customers with the highest levels of service, further reinforcing its efforts in maintaining the values of its brand. The company is motivated to continue its pledge in providing innovative services to meet the needs of its customers as well as to facilitate their personal, professional,

and business needs. Last year, Zain received the Gulf Breakthrough Award from Dell Technologies, the global leader in technology solutions. The award recognized Zain's Strategic Partnership with Dell in driving digital transformation within the telecom and IT sector in the region, as well as its offering of advanced solutions across its B2B and B2C platforms as per world-class standards. The award is a testament from one of the world's biggest technology leaders in Zain's capabilities and contributions to empowering digital transformation. The award reflected the company's leadership in adopting the highest international standards to offer advanced solutions with fantastic service quality to its subscribers and corporate customers, whom it considers an essential part of the Zain family, the biggest family of subscribers in Kuwait. Service Hero's assessment method is statistically rigorous, robust, and relevant. From representative sample sizes to service quality checks and ratings scales, Service Hero's Index provides a rigorous annual snapshot of consumer feelings. Based in

Kuwait, Service Hero is the only consumer powered customer satisfaction index in the Middle East. The company is a member of ESOMAR (European Society for Opinion and Marketing Research) and adheres to the global organization's principles and guidelines for self-regulation and ethical practice. Service Hero is overseen by an Independent Advisory Council to assure results that are impartial, objective, and accurately reflect consumers' preference, making the company's findings a credible benchmark that offers transparent and relevant insight for companies. It is comprised of academics and business professionals representing leading institutions and corporate establishments in Kuwait, including local banks, investment funds, consultancy groups, as well as private academic institutions such as the American University of Kuwait, Australian College of Kuwait, and Gulf University for Science and Technology. Since 2010, Service Hero has measured around 300,000 validated consumer assessments covering more than 300 private sector companies.

# Zain 'Best Telecom Company' and 'Best Digital Transformation Company' in Kuwait During 2021

Zain, the leading digital service provider in Kuwait, was named 'Best Telecom Company' and 'Best Digital Transformation Telecom Company' in Kuwait for the year 2021 during the annual excellence awards hosted by leading business magazine International Finance at Jumeirah Emirates Hotel, Dubai. International Finance Magazine presented the two awards to Zain – for the third time in its history – in recognition of the company's outstanding success, innovation, and relentless pursuit of excellence to serve its customer base, the biggest in Kuwait. Recently, Zain has achieved a number of milestones related to empowering digital transformation across Kuwait's private and public sectors. Zain is proud of this recognition from International Finance Magazine, which also reflects the achievements of Kuwait's private sector organizations in contributing to national economy. The 2021 awards honored leading companies and institutions that have delivered success, innovation and excellence, as well as those that have made a vital contribution to the vibrancy of business within Kuwait and the region. This recognition further strengthens Zain's role as a leader in the Kuwaiti private sector and reinforces the company's commitment in maintaining the values of its brand. Zain will continue its pledge to provide exclusive services to meet the needs of its customers and facilitate their personal and professional needs. As one of the most recognizable brands in Kuwait, Zain was recently ranked first in the 'Best

Mobile Operator' category for the tenth time and the 'Best Internet Service Provider' category for the sixth time in Kuwait for the year 2021 by Service Hero, the Arab World's only 100 percent consumer powered customer satisfaction index. In 2021, Zain received the Gulf Breakthrough Award from Dell Technologies, the global leader in technology solutions. The award recognized Zain's Strategic Partnership with Dell in driving digital transformation within the telecom and IT sector in the region, as well as its offering of advanced solutions across its B2B and B2C platforms as per world-class standards. The award was a testament from one of the world's biggest technology leaders in

Zain's capabilities and contributions to empowering digital transformation. The award reflected the company's leadership in adopting the highest international standards to offer advanced solutions with fantastic service quality to its subscribers and corporate customers, whom it considers an essential part of the Zain family, the biggest family of subscribers in Kuwait. Zain always aspires to new levels of excellence in all services it offers to its customers. The company affirms its continuous efforts in meeting customers' needs and aspirations to deliver its promise and offer the best services and latest technologies.

# Zain, HTC to Bring Metaverse to the Middle East

Zain Group agreed a distribution deal with HTC Vive to bring the device maker's VR portfolio to the Middle East region, as part of a wider play around enabling access to the metaverse. The operator explained it would make Vive devices available to its customers through its e-commerce platforms, in addition to a range of partners' physical and online stores. In addition to distribution, Zain stated the Vive ecosystem and Viveport

content platform will be marketed by its e-sports division and operator units across Kuwait, Saudi Arabia, Bahrain and Jordan. The partnership is deepened by Zain offering subscribers a Viveport service through its internal billing, with packages available through tariff bundles. Clearly, the agreement also has the long-term goal of tapping into the much-hyped metaverse. The duo stated it "will take both companies one step closer in bringing

the metaverse to their customers", while providing an unmatched experience on premium VR devices in the Middle East. Malek Hammoud, chief investment and digital officer at Zain, said the partnership with HTC would "herald" the operator's entry into the metaverse and add to its digital experience play across the region. Zain added it would look to expand the relationship and availability of the devices across other markets in the future.

# Zain Group Signs MoU with Huawei to Accelerate 5.5G Innovation and Enhance the Customer Experience

Zain Group has selected Huawei to accelerate the migration from 4G to 5G including 5.5G innovation to enrich the customer experience across multiple markets. A memorandum of understanding (MoU) establishing the partnership was signed at the recently held Mobile World Congress in Barcelona. Present during the signing ceremony were Zain Group CTO Nawaf AlGharabally, Zain Group Network Director Mohammad AlMurshed, President of Huawei Wireless Product line Yangchaobin, President of Huawei Zain Group Key Account Rico Lin, Vice-President of Huawei Middle East Marketing and Solutions Vanness You, as well as executive management teams from both companies. Within the scope of the MoU, Huawei will support Zain Group to optimize its network architecture to extend 5G capabilities to support IoT, Ultra-Reliable Low Latency Communications, uplink centric broadband, real-time broadband communication, harmonized communication, and sensing. The two entities will also work together to define autonomous driving network-level criteria and explore new use cases. Nawaf Al-Gharabally, Zain Group CTO, said: "Zain aims to provide a seamless converged experience for customers on 5G. Therefore, Huawei's network technologies will play a big part in user migration, 5.5G innovation, and intelligent network development fast-tracking the introduction of new digital services. Zain Group will work closely with Huawei to provide the required technologies that enables us to further advance AI and digital solutions that could immensely benefit our customers across multiple markets." Yangchaobin, President of Huawei Wireless Product line, said: "As a global ICT and network technologies provider, Huawei is committed to support Zain to achieve their strategy aimed at providing a seamless converged experience for customers. In the past year, Zain ranked as number one in terms of 5G offload ratio and proved to be one of the leading telecom operators in the Middle East." "In the future, 5G needs to support multi-dimensional services such as AR/VR, cloud gaming, passive IoT, autonomous driving, and so on. Therefore, both parties will need to pursue even deeper collaboration. In addition, Huawei's autonomous driving

network (ADN) capabilities are supporting Zain improve network efficiency and serve society more efficiently," Yangchaobin added. Zain Group is a leading ICT service provider in the Middle East and Africa region launching commercial 5G services in 2019 in Kuwait and Saudi Arabia and has since experienced rapid growth of 5G uptake. For example, Zain Kuwait's 5G data traffic already accounts for 46% of its total wireless traffic, and it is likely to become the first mobile operator in the MEA region that has more active 5G traffic than 4G. Zain Saudi Arabia launched the largest 5G network in the region now covering 51 cities. Zain aims to empower marginalized and disadvantaged communities by providing digital transformation solutions to create social and financial value. This will be achieved by ensuring inclusive access to connectivity, IoT, digitalization of Zain's core products and services, and the development of digital verticals. In addition, Zain will work closely with Huawei to develop the application of new 5G services and intelligent networks to accelerate the digital transformation of the societies it serves.



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# AT&T, Discovery Close Entertainment Merger

AT&T Inc and Discovery have closed their transaction to combine the telco's WarnerMedia business with Discovery. The combination creates 'a premier standalone global media and entertainment company', which will be called Warner Bros. Discovery Inc; the enlarged company will begin trading on the NASDAQ stock exchange today (11 April) under the 'WBD' ticker symbol. Under terms of the agreement – which was structured as a Reverse Morris Trust transaction – at close AT&T received USD40.4 billion in cash and WarnerMedia's retention of certain debt. Additionally, shareholders of AT&T received 0.241917 shares of WBD for each share of AT&T common stock they held at close. As a result, AT&T

shareholders received 1.7 billion shares of WBD, representing 71% of WBD shares on a fully diluted basis. Discovery's existing shareholders own the remainder of the new company. In addition to their new shares of WBD common stock, AT&T shareholders continue to hold the same number of shares of AT&T common stock they held immediately prior to close. John Stankey, CEO of AT&T, commented: 'With the close of this transaction, we expect to invest at record levels in our growth areas of 5G and fiber, where we have strong momentum, while we work to become America's best broadband company. At the same time, we'll sharpen our focus on returns to shareholders.'

# AT&T Collaboration Powers 5G-Enabled Defense Capabilities

Northrop Grumman Corporation and AT&T have entered into a collaboration agreement to research and develop a digital battle network, powered by AT&T 5G and Northrop Grumman's advanced mission systems, to support the U.S. Department of Defense (DoD). Northrop Grumman and AT&T plan to deliver a cost-effective, scalable, open architecture solution that will help the DoD connect distributed sensors, shooters and data from all domains, terrains and forces – similar to how smart devices connect and share data in our everyday lives. This digital battle network is expected to bring together the high speeds, low latency and cybersecurity protections of private 5G networks with the flexibility and scalability of AT&T's commercial 5G capabilities and offer a critical capability to support the DoD's vision for Joint All Domain Command and Control (JADC2). "Our collaboration with AT&T brings together some of the best capabilities in defense and commercial communications to meet the evolving requirements of JADC2," said Ben Davies, vice president and general manager, Networked Information Solu-

tions division, Northrop Grumman. "The enhanced connectivity and networking of information that 5G provides are a great advantage in a military environment and will help the DoD in the development of high-performing and intuitive technologies that quickly and seamlessly share data across a myriad of secure networks." "Our 5G capabilities can help the Department of Defense achieve operational and information advantage when it matters most – protecting our country and freedoms around the globe," said Lance Spencer, Client Executive Vice President-Defense, AT&T Public Sector and FirstNet. "By bring-

ing our 5G services together with Northrop Grumman's powerful avionics and defense systems, we expect to create an ideal platform to deliver DoD's JADC2 vision." The agreement establishes a joint research and development framework to prototype, demonstrate and test AT&T's commercial 5G networking capabilities integrated with Northrop Grumman's robust portfolio of capabilities that are at the forefront of military technological advancement that enable the Joint Force. For more information, visit Northrop Grumman's JADC2 webpage or go here to learn more about AT&T's work in the public sector.

# AT&T Recognized as One of the World's Most Ethical Companies

AT&T has been recognized by Ethisphere, a global leader in defining and advancing the standards of ethical business practices, as one of the 2022 World's Most Ethical Companies. This is the 3rd consecutive year AT&T has received this accolade, and AT&T is the only U.S.-based telecommunications company on the list. In 2022, 136 honorees were recognized spanning 22 countries and 45 industries. "Ethical decision-making is embedded in everything we do," said AT&T CEO - John

Stankey. "Focusing on ethics, integrity and building trust helps turn our customers into advocates and adds to our competitive advantage, and we're proud to be on this list once again." "In my role at AT&T, driving an ethical culture is one my most critical responsibilities," said David Huntley, AT&T Senior Executive Vice President and Chief Compliance Officer. "Never before has the integrity of corporate institutions been questioned at the level they are questioned today. To be acknowledged with this

award three years in a row, is a testament to our employees and the customers we serve." "Today, business leaders face their greatest mandate yet to be ethical, accountable, and trusted to drive positive change," said Ethisphere CEO - Timothy Erblich. "We continue to be inspired by the World's Most Ethical Companies honorees and their dedication to integrity, sustainability, governance, and community. Congratulations to AT&T for earning the World's Most Ethical Companies designation." Grounded in Ethisphere's proprietary Ethics Quotient®, the World's Most Ethical Companies assessment process includes more than 200 questions on culture, environmental and social practices, ethics and compliance activities, governance, diversity, and initiatives to support a strong value chain. The process serves as an operating framework to capture and codify the leading practices of organizations across industries and around the globe.

China Mobile
International

# China Mobile Books 10% Uptick in Annual Turnover

Chinese full-service provider China Mobile has booked operating revenue of CNY848.3 billion (USD133.1 billion) for the year to 31 December 2021, an increase of 10.4% year-on-year and of which telecom service revenue accounted for CNY751.4 billion (up 8.0% from 2020). The company attributed the growth in part to rapid expansion in areas including smart home services, data and ICT (DICT), mobile cloud, digital content and digital transformation, which it said accounted for nearly 60% of the growth in telecommunications service revenue. Annual EBITDA rose 9.1% y-o-y to CNY311.0 billion, whilst net profit attributable to shareholders grew by 7.7% to CNY116.1 billion. Mobile noted that it

fully implemented its '5G+' plan in 2021 and, through its partnership with China Broadcasting Network (CBN), it was able to benefit from the combined advantages of the 2.6GHz and 4.9GHz frequency bands for capacity and the 700MHz band for coverage. By the end of the year it had deployed a total of 730,000 5G base stations – 200,000 of which were on the 700MHz band – providing 'continuous 5G network coverage across urban districts, counties, towns and villages, with favorable coverage in some of the key regions and locations, developed villages, key buildings and venues.' In addition, China Mobile confirmed that it has rolled out 5G voice for commercial use in the form

of a voice-over-New Radio (VoNR) feature. China Mobile counted a total of 957 million mobile subscriptions at the end of 2021, up from 942 million a year earlier. Its 5G package customer total (i.e. the number of subscriptions that can potentially use 5G services) reached 387 million (up 134.4% y-o-y), of which 207 million were network users (subscriptions with a 5G plan and compatible device that have accessed the 5G network). Meanwhile, monthly mobile ARPU improved to CNY48.8 in 2021 from CNY47.4 in 2020. IoT connections totaled 1.049 billion at end-2021, compared to 873 million twelve months earlier.

## Key Performance Indicators

中国移动 China Mobile

| (RMB Mil) | 2020 | 2021 | Change YoY |
|---|---|---|---|
| Operating revenue | 768,070 | 848,258 | 10.4% |
| of which: telecommunications service revenue | 695,692 | 751,409 | 8.0% |
| EBITDA | 285,135 | 311,008 | 9.1% |
| EBITDA margin | 37.1% | 36.7% | -0.4pp |
| Net profit | 107,843 | 116,148 | 7.7% |
| Net profit margin | 14.0% | 13.7% | -0.3pp |
| Basic earnings per share (RMB) | 5.27 | 5.67 | 7.7% |

Note: Unless otherwise specified,
1. Telecommunications service revenue = operating revenue-revenue from sales of products and others; revenue from sales of products and others mainly comprises sales of terminal products such as handsets
2. EBITDA = profit from operations + depreciation and amortisation; net profit refers to profit attributable to equity shareholders of the Company

# China Mobile Returns to Consumer Growth Led by 5G

China Mobile credited profit and revenue growth in 2021 to a turnaround in its consumer market, with 5G subscribers more than doubling and ARPU inching higher. In a statement, chairman Yang

Jie noted the residential market reversed a downward trajectory with positive growth in 2021, with revenue from the unit increasing 1.4 per cent year-on-year to CNY483.4 billion ($75.8 billion).

Yang also noted revenue related to digital transformation projects became its largest revenue growth driver during the year and added the number of customers with both 5G plans and handsets, referred to

as integrated benefits, increased by 112 million to reach 190 million. Net profit improved 7.7 per cent to CNY116.1 billion. Operating revenue increased 10.4 per cent to CNY848.3 billion, with service revenue rising 8 per cent to CNY751.4 billion. Product sales increased 33.8 per cent to CNY96.8 billion. The operator added 221.8

million 5G package customers (those on compatible service plans) to close the year with 386.8 million. Total mobile subscribers increased 15 million to 956.9 million and ARPU by 3 per cent to CNY48.80 Sales from its digital transformation efforts, tied to new businesses and the consumer segment, rose 26.3 per cent to CNY159.4

billion, accounting for 59.5 per cent of total service revenue. Its home, enterprise and new businesses revenue contributed 35.7 per cent of its total, up 4.3 percentage points. Mobile cloud revenue expanded 114 per cent to CNY24.2 billion, with monthly active users up by 32.4 million to a total of 135 million.
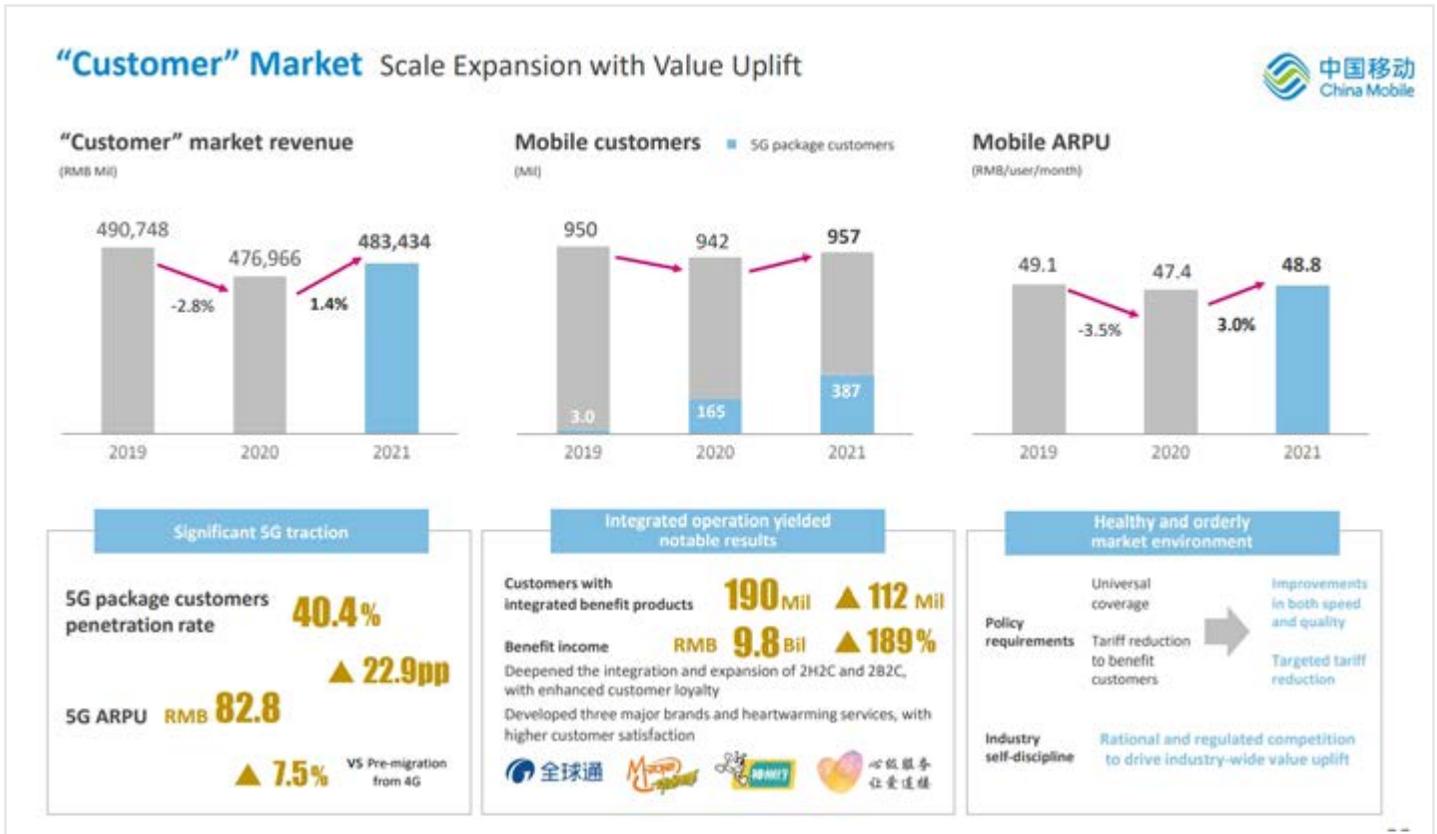


## Cisco Celebrates 25 Years of Innovation in Saudi Arabia

Global technology leader Cisco is celebrating the 25th anniversary of its establishment in the Kingdom of Saudi Arabia this month. During this time, Cisco has become a key contributor to the Kingdom's innovation journey, through initiatives such as the Country Digital Acceleration (CDA) program. Cisco CDA works through an ecosystem of partners and contributes to digital transformation initiatives in national priority sectors including energy, healthcare, education and smart and sustainable cities. Through CDA, Cisco helped local healthcare providers

implement tele-consultation services for patients in remote areas, created hybrid learning environments and used Wi-Fi 6 and the latest networking solutions to help digitize university campuses. To support the development of digital skills, Cisco Networking Academy has been active in the Kingdom since the year 2000. To date, more than 225,000 students have acquired IT and networking skills at more than 100 local academies. With one third of the students being girls and women, Saudi Arabia registers one of the highest female participation rates in the program globally.

To celebrate its 25th anniversary in the country, Cisco is supporting the Saudi Green Initiative, which aims to plant 10 billion trees across the Kingdom. As part of its new 'Let's make it green' campaign, Cisco is working with Faseel, the Saudi environmental development foundation, to plant 2,500 plants in Thadeq National Park. "At Cisco we are proud to celebrate 25 years of success in Saudi Arabia. Our presence reflects our commitment to support the Kingdom's digital transformation agenda. Over the years, Cisco has played an important role in building digital and green

communities through various initiatives, and the 'Let's make it green' campaign is no different. As Saudi Arabia continues on its digitization journey, Cisco is ready to provide its technology and expertise to make it possible," said Reem Asaad, Vice President, Cisco Middle East and Africa. "During all these years, Cisco has been at the forefront of delivering technology thought leadership and innovations to the Kingdom, achieving several milestones with our partners, customers and employees, for whose trust and loyalty I am immensely grateful. Today, 82% of the Kingdom's population agree that access to fast and reliable internet is critical to future economic growth. Our solutions in networking, cybersecurity, collaboration, data center and mobility are used across all sectors of the economy. In addition, with investments in programs such as CDA and Cisco Networking Academy, and our focus on diversity and equal opportunities, we are contributing to the creation of a vibrant and inclusive digital economy in light of Vision 2030," Salman Abdulghani Faqeeh, Managing Director, Cisco Saudi Arabia added.



# Spark New Zealand Strengthens Its IoT Platform with Cisco

Spark New Zealand is advancing its IoT Control Center platform powered by Cisco with new features to help businesses improve service reliability and reduce operational costs using machine learning and artificial intelligence. IoT deployments generate vast amounts of data per day, making it impossible for enterprise customers to personally monitor their IoT deployment and catch issues when they arise. This can lead to larger problems impacting service reliability, increasing cost, and compromising security. Cisco is solving this challenge for Spark with two new modules added to the Cisco IoT Control Center connectivity platform that use advanced proprietary machine learning algorithms to process massive amounts of data in near real time for its enterprise customers. New modules include: Anomaly Detection: monitors each enterprise customer independently and trains itself on the device's behaviors to determine what is normal and what is abnormal, flagging any anomalies, allowing the customer to review and address potential issues as quickly as possible. Cost Optimization: analyzes the entire device deployment and determines the optimal rate plan for each device based on actual data usage for the current billing cycle, saving enterprises up to 15% off their typical connectivity costs. "By adding these enhancements to Cisco IoT Control Center, we continue to strengthen our IoT capabilities to reduce customer operational and billing issues and enhance our value to enterprise customers," said Tony Agar, Spark IoT lead. "Through our partnership with Cisco we are able to help businesses become more productive, resilient and sustainable through innovative technology." "Spark continues to differentiate itself by driving innovation to help its customers realize the full potential of IoT to help lower costs, and automate services," said Masum Mir, Vice President and General Manager, Cable, Mobile and IoT, Cisco. "With these advancements to Cisco IoT Control Center, Spark enterprise customers can detect and address potential issues with their IoT deployments as early as possible, simplify cost management and minimize unexpected charges."

# Cisco Launches Circular IT Payment Solution to Support Customer Sustainability Goals

Cisco announced that it is launching a payment solution called Cisco Green Pay that supports the circular use of Cisco's sustainable technologies. This offer enables customers to enter the circular economy and helps them meet their sustainability goals. At the end of the term, the product is recovered by Cisco free of charge. "Environmental, social and corporate responsibility are not only embedded in our business practices and products, but they are also a priority for our customers," said Wendy Mars, EMEAR President, Cisco. "This new payment solution for Cisco sustainable technology offers our customers reliable IT solutions that consume less resources and ensures they are benefiting from the latest innovation." Cisco Green Pay offers a 5% incentive on Cisco hardware, predictable payments for five years and free product returns. When the equipment is returned, the customer receives a certificate confirming that it has entered the circular economy. Additional offer features:

- Applies to Cisco's sustainable technologies, including Green Meraki®, the Cisco IoT portfolio, smart buildings, and Service Provider (SP) infrastructure.
- Customers can also bundle in Cisco software and services.
- At the end of the term customers return the equipment or have the option to extend for one additional year.
- Available in select countries across Europe and Middle East including Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, UK.
- Complements Cisco's other sustainability efforts (including the recent launch of the partner Environmental Sustainability Specialization and Takeback Incentive and the Send IT Back app) to transition to the circular economy.
- Accelerates Cisco's commitment to 100% product return and supports its goal to be net zero by 2040.

According to the Ellen McArthur Foundation, the circular economy can contribute towards tackling the 45% of global greenhouse gas emissions that cannot be resolved by transitioning to renewable energy alone. Circularity is one of the main building blocks of Europe's new agenda for sustainable growth, and environmental sustainability is becoming critical for IT departments in EMEA. Of 311 channel partners surveyed by Canalys in March 2022, one in four EMEA respondents reported that environmental sustainability is included in over a third of customers' requests for proposals received. Cisco Green Pay enables customers to address the growing concerns related to the sustainability of their technology. "Cisco Green Pay introduces a circular payment model that minimizes waste, making it easier for customers to build a sustainable IT strategy and to reach their environmental, social, and governance goals," said Guido Kessler, Cisco Capital EMEA Sales Leader. "With this payment solution, Cisco can meet customers' needs for more predictability and sustainability."

Cisco is committed to powering a sustainable, circular, and inclusive future:

- In 2021, Cisco made a new commitment to reach net zero across all Scope 1, Scope 2, and Scope 3 emissions by 2040 (which includes product use, operations, and supply chain) with an interim goal to reach net zero across all global Scope 1 and Scope 2 emissions by 2025.
- At the World Economic Forum in January 2018, Cisco CEO Chuck Robbins and eight other tech executives signed the Capital Equipment Pledge, in which Cisco committed to 100% product return upon request, at no cost to customers. Cisco Green Pay helps accelerate this goal by introducing a commercial model that promotes circular IT versus ownership to help increase the number of products returned and remanufactured.
- By FY25, 100% of new Cisco products and packaging will incorporate Circular Design Principles.
- The Product Takeback and Reuse Program lets Cisco equipment owners return hardware that has reached end-of-use, at no cost. 99.9% of what is returned is reused and recycled, ensuring responsible disposition of equipment.
- In Fiscal 2021, Cisco enhanced its tools to facilitate product return at end of use by expanding the Send IT Back app. The app is currently available to both Android and iOS users in the US, UK, and the EU, with plans to expand access across additional markets globally.
- Cisco Refresh, Cisco's certified remanufactured business, has reduced the company's reliance on raw materials and has kept over 2.5 million pounds (about 1133980 kg) of equipment from going to landfills in the past year. The program helps meet Cisco's sustainability goals and benefits customers' looking for tangible ways to show their sustainability commitments through a range of value-added lifecycle solutions.

# Cisco Reveals New Cloud Software, Hardware and Operating Model to Accelerate Enterprises' Hybrid Cloud Adoption

Cisco announced new innovations to help customers accelerate and simplify their hybrid cloud journeys. As application growth continues to drive more interactions between people and things, businesses are striving for simplicity and flexibility to manage application diversity. Modern applications have become more dynamic requiring infrastructure to be more adaptable. At the same time, IT is being asked to support enterprises' rapidly changing business requirements and speed up infrastructure and application delivery. As a result, organizations are shifting to a hybrid multicloud operating model to centrally manage infrastructure and applications wherever they reside and deliver optimized application experiences. In fact, a recent Gartner end-user survey showed 76 percent of respondents who are currently using public, hybrid or multicloud infrastructure reported using multiple cloud IaaS and PaaS providers. Cisco is advancing its strategy to deliver innovation at all levels of the hybrid cloud stack, ranging from silicon to computing systems to a SaaS-delivered operations platform with public cloud integrations - all designed to help customers simplify and manage multiple cloud environments and applications. "While enterprises are standardizing on hybrid, multicloud environments, many are still building a strategy to minimize complexity and maximize value with an operational model and tools that deliver flexibility, speed and simplicity," said DD Dasgupta, Vice President, Product Management, Cloud and Compute Business Unit at Cisco. "Cisco has paved the way to help IT operations transform with hybrid cloud, enabling an operational model that allows businesses to adapt quickly, and streamline the secure delivery of applications whether they are located in on-prem datacenters or in the public cloud." New hybrid cloud innovations announced today include:

Cisco Intersight Platform

- Cisco Intersight Kubernetes Service with Attached Clusters: New Intersight capability that allows customers to connect their on-prem Kubernetes clusters to new or existing Kubernetes clusters in public cloud, allowing IT administrators to observe and operate containers across on-prem and multiple public clouds from a single platform.
- Cisco Intersight integrations with Amazon Elastic Compute Cloud (Amazon EC2): Expands hybrid cloud capabilities to include combined inventory and automation of virtual machines in AWS in addition to on-prem environments.

Cisco HyperFlex Hyperconverged Infrastructure

- Introducing Cisco HyperFlex Express: Simplified hardware and software that provides customers with a fast on-ramp to hybrid cloud, reducing deployment speeds with on-prem hyperconverged infrastructure powered by Cisco Intersight.
- Cisco HyperFlex systems with 3rd Gen AMD EPYC TM processors: Expands customers' choice with AMD EPYC CPU-based hyperconverged systems that deliver outstanding cluster performance and efficiency for a diverse set of workloads.
- Innovation for Edge Computing: New containerized local witness software can run on a variety of Cisco switching, routing and IoT industrial networking platforms, often already present in edge environments, providing an efficient, lightweight high-availability solution for 2-node clusters.

Cisco UCS X-Series

- Cisco UCS X-Series: The fastest growing UCS system in Cisco's history, the UCS X-Series Modular System is now enhanced with new accelerated computing capabilities and flexible high-performance networking. These include:
- Graphics Processing Unit (GPU) Node with Cisco UCS X-Fabric Technology: Provides customers the flexibility to connect compute nodes to NVIDIA accelerated computing GPU resources to meet the needs of modern AI/ML and virtual desktop infrastructure workloads. This enables improved efficiency using a single system for blade and rack workloads.
- 5th Gen Unified Fabric for performance and simplicity: Industry-leading performance in a modular system including 100G single port support and 200G bandwidth to a single server that delivers investment protection, lower costs, and ample bandwidth to power data intensive applications.

"With increasing cloud adoption, application outcomes are the new currency, and IT must modernize their environments to dynamically deploy resources to suit multiple application demands," said Matthew Kimball, Vice President and Principal Analyst at Moor Insights and Strategy. "Cisco is building on its strategy and technology foundation to help customers simplify their hybrid multicloud environments and provide the infrastructure that powers all types of workloads and delivers the most value from using on-premises resources in coordination with public cloud services."

# Cisco-Verizon Collaboration Advances Autonomous Vehicle Tech with Streamlined Architecture

Cisco and Verizon collaborated on a successful proof of concept demo in Las Vegas, showing that cellular and mobile edge compute (MEC) technology can enable autonomous driving solutions without the use of costly physical Roadside Units to extend radio signals. The result paves a simpler and more efficient route to powering applications such as autonomous/unmanned last-mile delivery bots and robotaxis in cities like Las Vegas, where public MEC technologies exist. Additionally, cities and roadway operators could create safer roads with C-V2X applications including pedestrian protection, emergency and transit vehicle pre-emption, on and off-ramp protection (e.g., when a loaded truck needs autonomous guidance to merge or brake safely), and potentially others that involve vehicles approaching intersections with traffic signals.

Proof of Concept
Autonomous features in connected vehicles have always relied on roadside radios to extend the signals vehicles use for low-latency communication with each other and surrounding connected infrastructure. The Cisco and Verizon test proved that Verizon's LTE network and public 5G Edge with AWS Wavelength, together with Cisco Catalyst IR1101 routers in connected infrastructure, can meet the latency thresholds required for autonomous driving applications – replacing the costly roadside radios previously required to meet those needs. By using LTE and edge compute to virtualize the role of the Roadside Units, C-V2X communications proved to be more streamlined – likely to result in improved

efficiency and cost effectiveness for municipalities, infrastructure providers, and application developers working with autonomous vehicles. (C-V2X refers to a vehicle's ability to communicate with other vehicles and connected infrastructure surrounding it.) The result demonstrates that connected and autonomous vehicle applications can be deployed today using LTE networks, mobile edge compute, and in-vehicle interfaces deployed by OEMs. These capabilities could lead to safer, less congested roads in current connected and autonomous vehicles, with scalability for future applications hosted at the edge and using LTE and 5G connectivity.

Connected Transportation – Powered by Cellular
Improving communication between vehicles and their surrounding infrastructure is essential for creating safer roadways and enabling the autonomous future of driving. Intersections must be securely connected and equipped with

compute to allow applications at the edge to communicate and inform split-second decision making. "This test is a huge milestone in proving that the future of connectivity for IoT applications can be powered by cellular," said Krishna Iyer, Director of Systems Architecture, Verizon. "We're marking the strength of mobile edge compute platforms for connected transportation innovation with much more streamlined architecture. Together with Cisco technologies, we're setting the foundation potentially to realize a ubiquitous IoT in the connected and autonomous future of driving." "The future of autonomous vehicles cannot progress without reliable communication between vehicles and their surrounding environments," said Mark Knellinger, Lead Transportation Solutions Architect, Cisco. "This is huge for roadway operators in that it relieves them of the massive expense of deploying and operating a dedicated V2X environment."



# Cisco, NEC Deploy 5G-Ready IP Network for Vivo

Cisco and NEC are deploying a 'simplified and automated, 5G-ready IP network' for Telefonica Brasil (Vivo), as the telco seeks to operate converged mobile and fixed networks as part of its 'Fusion Network Project'. The press release notes: 'Telefonica designed the Fusion Network Project as a platform for incorporating services into a single network infrastructure, offering advanced communications services, and transforming the customer experience.' Cisco will provide Vivo with the network equipment, while NEC will serve as the network integrator.

## Huawei Profit Hits Record High Despite Revenue Slide
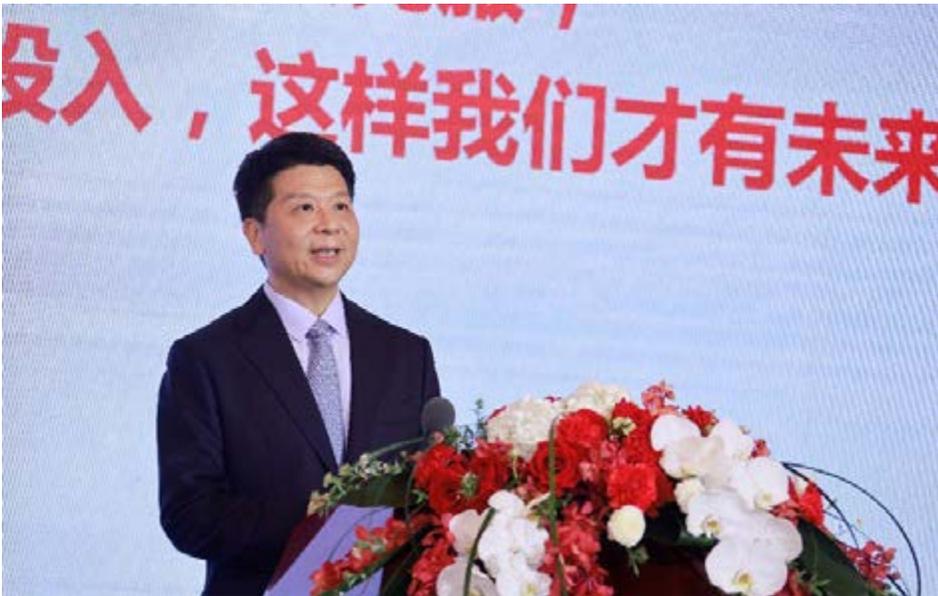


Huawei registered its highest annual profit ever in 2021 due mainly to one-off gains from the sale of its Honor sub-brand and other businesses, but overall revenue dropped sharply as consumer business sales were cut by half. In an online earnings call, rotating chairman Guo Ping (pictured) put on a brave face and pointed to the positives, insisting its performance was in line with forecasts but acknowledged it has plenty of challenges ahead in 2022. "We will continue our fight for survival," he declared. Guo said its ability to thrive relies on its continued investment in R&D. "We are doubling down on our efforts in basic science. Since Huawei is unable to access certain advanced technology due to US trade sanctions, he said it must boost its strategic investments. Net profit last year jumped 75.9 per cent from 2020 to CNY113.7 billion ($17.8 billion) due to

one-off extraordinary gains, while revenue plunged 28.6 per cent to CNY636.8 billion, as its operations were hit by the sanctions. The company stated that excluding the extraordinary gains, the company's main business posted a year-on-year increase in net profit margin. CFO Meng Wanzhou said on the call that despite the revenue decline, "our ability to make a profit and generate cash flows is increasing, and we are more capable of dealing with uncertainty." It was Meng Wanzhou's first media appearance since her September release from three years of house arrest in Canada. Meng attributed the improved margins to moves to adjust its product mix and improve its supply chain planning, enabling it to shorten the cycle from order to revenue. Moves to improve operational efficiency drove a CNY10 billion drop in selling and administrative expenses. Revenue from

its troubled Consumer Business Group (including devices) dropped 49.5 per cent year-on-year to CNY243.4 billion due to trade restrictions. Apart from smartphones and tablets, revenue from wearables and smart screens increased 30.3 per cent. Turnover from its carrier group (including operator networks) declined 6.9 per cent to CNY281.5 billion, with 50 per cent of sales generated by markets outside China. Enterprise revenue inched up 2.1 per cent to CNY102.4 billion, with cloud revenue growing 34 per cent year-on-year to CNY20.1 billion. Domestic sales fell 30.9 per cent to CNY413.3 billion, accounting for 64.9 per cent of total company sales, unchanged from 2020. R&D spending in 2021 rose 2.8 per cent to CNY142.7 billion, accounting for 22.4 per cent of total revenue, up from 15.9 per cent in 2020.



## Huawei's ICT Talent Program Launched in Bangladesh with Roadshows

Huawei has kicked off its Seeds for the Future, a flagship CSR (Corporate social responsibility) program for Bangladeshi students, the Chinese telecom giant said recently. Starting from April, the company said the registration is open and interested students can register free of cost by contacting their university departments. Seeds For The Future is Huawei's flagship CSR program to develop ICT (information and communication technology) talent. The program's Bangladesh version was first launched in 2014. Also, roadshows are being arranged at the participating univer-

sities this month, and recently two were held at the University of Dhaka and the Islamic University of Technology. "Huawei believes in empowering and facilitating the youth. That's why, we have different programs meant to help the youth gather knowledge and develop ICT-related skills," said Li Zongsheng, board member of Huawei Bangladesh (Technologies) Ltd. "Seeds for the Future is one such program. I believe a great number of students will enroll in this program this year since this year's edition will be equally exciting and enlightening for the participants," he said.

# Huawei CloudEngine Data Center Switches Earn Highly Acclaimed Common Criteria EAL4+ Certification

Recently, Huawei's CloudEngine 16800, 8800, and 6800 series data center switches passed the security evaluation by SGS Brightsight, the renowned security evaluation lab in the world, and earned Common Criteria (CC) Evaluation Assurance Level 4 Augmented (EAL4+) — the highest level of assurance for network products. In doing so, these series of switches have become the industry's first switch models to achieve the CC certification with identical security functionality claims of the Network Device Collaborative Protection Profile (NDcPP). CC provides assurance that information technology (IT) products and solutions meet certain levels of security, reliability, and privacy protection. It is the most widely recognized and trusted IT product security certification in the world and can be used as an important basis for product security evaluation during enterprise IT solution construction. Kai-Fan Chang, COO Asia

of SGS Brightsight, said, "SGS Brightsight is the number one security evaluation lab in the world. It is a great honor to help Huawei obtain a CC certificate through our excellent team of security evaluators. This CC certificate can be used to demonstrate that, with the world's leading cyber security level, Huawei CloudEngine data center switches can offer customers secure and trustworthy services based on the evaluated devices." As digitalization in various industries ramps up, new ICT infrastructure — the foundation of the digital economy — gradually transforms into a data center-centric architecture. In turn, this presents data center networks with more severe challenges in security and reliability. On the one hand, data center networks need to strength their security protection system. On the other hand, they need to cope with increasingly diverse attacks. Wang Wuwei, Vice President of Huawei Data Center Network Domain,

said, "Huawei always attaches top priority to the security and trustworthiness of our products. We build our security system for CloudEngine data center switches from multiple dimensions, including design, development, and delivery. They help build data center networks with a leading architecture, comprehensive functions, and high reliability, making them ideal for a broad range of scenarios such as cloudification, high-performance computing (HPC), and storage networks." Huawei CloudEngine data center switches ensure product security and reliability at the following layers:

- Architecture security: The security framework focuses on access security and operation security, building layer-by-layer defense capabilities of switches along possible attack paths.
- Environment security: A secure product development environment is built through measures such as network isolation, security authentication, and permission minimization.
- Release and deployment security: Through defense against tampering, source tracing, trusted source, and anti-malicious download, Huawei CloudEngine data center switches implement end-to-end integrity protection.

In addition, Huawei has an independent security test platform to perform security tests on its products, ensuring product security and trustworthiness. In the future, Huawei will continue to innovate data center network products, laying a solid foundation for data center infrastructure connections and building secure and reliable next-generation data centers.
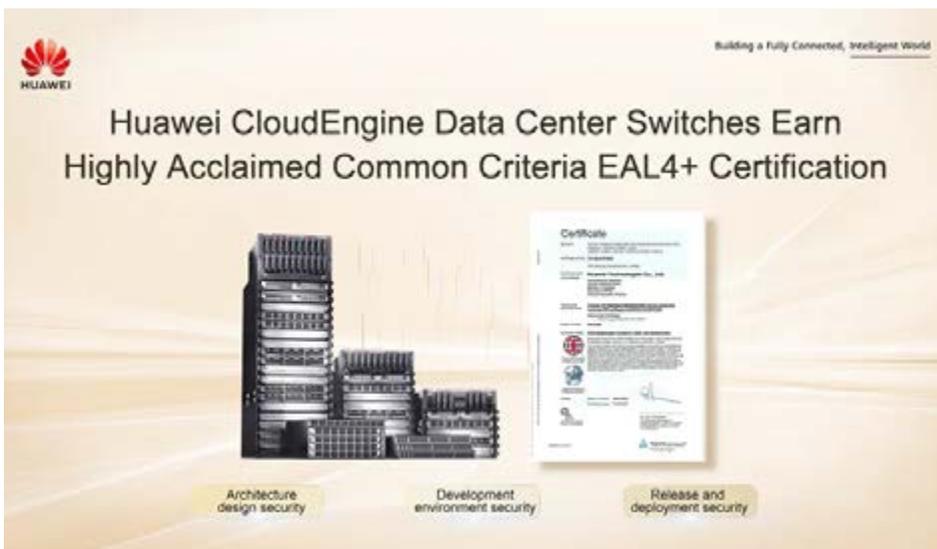


# Huawei Highlights Deep Cooperation with towerco at TowerXchange Meetup MENA in Dubai

Huawei, a leading global provider of information and communications technology (ICT) infrastructure and smart devices, took part in TowerXchange Meetup MENA 2022, the leading event for the region's telecom tower industry. At the summit held in Dubai, Huawei participated

in discussions on tower vendors' energy needs, wireless networks, and intelligent O&M management, among other topical industry themes. TowerXchange Meetup MENA 2022, being held for the first time in the Middle East, is an ideal opportunity to follow the region's rapidly developing

towerco sector and discuss the industry's future. The biggest platform for the tower merchant industry, TowerXchange gathered key global players in the space, such as Tawal, IHS Towers, Helios, TASC and Edotco, a reflection of the region's growing towerco sector. Dr. Mohamed

Madkour, VP for Carrier Networks Solutions & Marketing, gave the keynote speech at the event. He said, "At the TowerXchange Meetup, Huawei showcased its vision to meet carbon neutrality targets by delivering green energy solutions to tower customers. Huawei is open to extending its collaboration with tower companies to help them achieve their goals." Nitin Joshi, Digital Power Solution Expert, ME Digital Power, joined the "Energy Focus Session: Energy Strategies for Advanced Telecom Markets" roundtable. He noted, "Huawei Digital Power's innovations will help tower companies deliver green energy to advance sustainability efforts and help overcome high power demand due to the rise of new technologies. Huawei solution will also help monetize site power, particularly in non-grid areas." Amr Farouk, Senior Business Architect, Carrier Network Business Group Middle East, took part in a roundtable titled, "Data Focus Session: Monitoring and Controlling New Tower Portfolios". He said, "Huawei has end-to-end closed-loop capability and experience in digital transformation and intelligent operations with full scenario solutions, including digital site management & planning, digital engineering and digital operation and maintenance. The capability was built on the digital platform and software application site digital twin, ISDP, Neteco and Autin." "Huawei will cooperate and support towerco companies to achieve business success through higher operation and maintenance efficiency, increase revenue and lower total cost of ownership (TCO) by leveraging its digital transformation capabilities," Farouk

added. Towerco operators enable carriers to optimize resources by offloading non-core functions to dedicated tower companies, allowing them to focus on the customer experience. In recent years, the sector has picked up pace in MENA with ongoing tower sale processes or under consideration in Saudi Arabia, Jordan, Iraq, Bahrain, Tunisia, Oman, and Pakistan. Additionally, a new towerco license is being awarded in Egypt, and ESCOs are now active from Pakistan to Morocco. The market is unlocking new opportunities, and new players, both regional and international, are taking control of MENA's 279,852 towers, with utilization of less than 15% from them. TowerCo operators highlighted that their business build-up is based on long-term investment, and they need to have a sustainable and innovative solution balanced between reasonable cost, applicability, and good business case. The shift comes amid a heightened focus on driving co-locations and operational efficiencies and implementing best practices from across the globe in the sharing and optimization of passive infrastructure. Huawei's expertise in powering the most advanced 5G networks globally brings new value to towerco players. Further, Huawei's site power products, such as the Advanced Hybrid Power solution, offer an integrated, industry-leading AI hybrid power technology and intelligent self-adaptation to maximize energy efficiency and optimize power supply architecture. The solution is specifically adapted to meet customers' needs for a simplified, intelligent, and reliable power supply.

# Huawei Establishes Academy to Develop Talent Ecosystem in Bangladesh

Chinese telecom giant Huawei has established an academy in Bangladesh to equip young learners with industry-fit skills and develop an information and communications technology (ICT) talent ecosystem. The academy was established in collaboration with one of the country's leading educational institutions Bangladesh University of Engineering and Technology (BUET). The journey of the "Huawei BUET ICT Academy" with around 250 students started on Wednesday following an inauguration ceremony at its campus in Bangladesh's capital Dhaka. Zunaid Ahmed Palak, Bangladeshi state minister for ICT, was present at the ceremony as the chief guest while Pan Junfeng, chief executive officer of Huawei Technologies (Bangladesh) Ltd, and Satya Prasad Majumder, vice-chancellor of BUET, among others, attended the event. In his speech, Palak said, "We've seen what the features of Huawei BUET ICT Academy are and how it will be beneficial



to the students and teachers." Majumder said they are delighted to collaborate with Huawei for establishing this ICT academy. He said this academy will contribute significantly to the existing curriculum of BUET as well as help the aspiring learners to develop themselves by acquiring hands-on experience and get insights into the industry. Pan said Huawei is also happy to extend this project to Bangladesh. Driven by the idea "We're in Bangladesh, for Bangladesh," Huawei ICT academy will strive for excellence through collaboration of young learners with academics and industry experts. The academy has been established as a non-profit education program where the learners will be provided with training and learning solutions to meet the needs of the ICT sector, according to Huawei. Another major intention of this academy is to create a talent ecosystem for the ICT sector, the company said, adding the participants will be given a chance to communicate with more than 3,000 instructors from around the world. According to a Huawei statement, there will be 83 certification programs on 19 different subjects as per the current plan. The course and certification will be coordinated by Huawei Authorized Information and Network Academy, it said. Huawei said it has more than 1,500 such ICT academies in over 90 countries around the world.

# Huawei Commits to Invest into Foundational Technologies to Reshape the Technological Paradigm



JUST LOOK UP
LET'S LIGHT UP THE FUTURE

Guo Ping
Huawei Rotating Chairman

At the recently concluded Mobile World Congress in Barcelona, Huawei showcased a series of new technologies and solutions from across all of its business units to ensure success through digital transformation. The company came together with industry partners to share knowledge, experiences, and best practices to continuously create value for telecom carriers and to help enterprises accelerate their digital transformation. During the weeklong event, Huawei met with organizations from the Middle East and abroad to discuss topics including 5G business success, green technology, and connectivity + IT, with a focus on creating business and social value to light up a bright future of the digital economy. Huawei has estimated that over 50 percent of global GDP will be digitalized in 2022 as the global digital economy

develops rapidly. Rotating Chairman Guo Ping committed to continue Huawei's globalization strategy and increase its investment into foundational technologies to reshape the technological paradigm. Through this investment, Huawei hopes to reshape the fundamental theories, architecture, and software that underpin its industry, increase its mid-to long-term competitiveness, and ensure the longer-term sustainability of the ICT industry. Under the theme of "Lighting up the Future" at MWC, Huawei featured various scenarios of how carriers should prepare for the gigaverse and how they can embed sustainability in their operations. Ryan Ding, Huawei's Executive Director and President of the Carrier Business Group, called on operators to join Huawei in its GUIDE business blueprint to create a better digital economy together. Huawei also

announced the launch of new intelligent solutions and technologies including 5G Advanced, 6G, IPv6+, and advanced computing technologies. Many of these new digital services were discussed with more than 15 Middle East telecom carriers and industry partners during the company's Operations Transformation Forum at MWC. Meanwhile, Huawei placed a particular emphasis on sustainability at MWC, illustrating how a new generation of green ICT solutions and strategies will support its carrier and enterprise customers. The company showcased how it can support carriers to optimize energy by building energy-efficient sites, networks, and operations, helping them to reduce their carbon footprint while lowering energy expenses to meet their cost reduction goals—achieving "More Bits, Less Watts". The company also won several awards at MWC. Huawei 5Green Solutions were recognized twice at the MWC22 Barcelona, winning the GTI 'Innovative Breakthrough in Mobile Technology Award' and 'Outstanding Award', a testament to Huawei's substantial contributions to technological innovation and sustainable development in its efforts to promote customer benefits. Moreover, world leading operators Telkomsel, TPG, joint with Huawei won the GTI Awards '2022 Market Development' Award for their outstanding contributions to the 2.3 GHz industry. The company was also named a Leader in Gartner Magic Quadrant for primary storage for six consecutive years.

# Huawei, PSEB to Offer Cloud Services to Pakistani IT industry

Huawei and Pakistan Software Export Board (PSEB) recently signed a contract to offer cloud services to the Information Technology (IT) industry that will enable digital transformation in the public sector in Pakistan Cloud Summit 2022, Karachi. Federal Minister for IT and Telecommunication Mr. Syed Amin-ul-Haque and Federal Secretary IT and Telecommunication Dr. Muhammad Sohail Rajput witnessed the contract signing

ceremony. Member of IT MoITT, Mr. Junaid Imran, CEO of Abacus Pakistan, Ms. Fatima Asad, CEO of Huawei Pakistan Cloud, Mr. Shahzad Rasheed, MD of PESB, Mr. Osman Nasir, along with other officials from MoITT and Huawei Pakistan were all present at the Summit. PSEB is an apex government body mandated to promote Pakistan's IT Industry in local and international markets. Huawei Cloud is gaining momentum in Pakistan and has shown a clear value as

the only HyperCloud present in Pakistan. The 4th industrial revolution is armed to make everything connected and intelligent. This Cloud Summit brought stakeholders from the industry and public sector together to discuss about the future opportunities cloud presents. Experts shared key insights. Earlier, addressing the Pakistan Cloud Summit 2022 as the chief guest Federal Minister Mr. Syed Aminul Haque said the first Cloud Policy

by the Ministry of Information Technology and Telecommunication (MoITT) was the greatest milestone achieved by Pakistan. He also paid his gratitude to Huawei Pakistan for organizing this event and playing its part in cloud adoption in Pakistan. He stated at the event, Speaking at the summit, Federal Secretary IT and Telecommunication, Dr. Muhammad Sohail Rajput said, "The world is moving fast towards the transformation of IT and IT services, therefore Pakistan's agrarian economy should shift towards an IT-based economy." He also thanked Huawei for hosting this event on cloud computing and trusted that they will play their part in accelerated digital adoption in Pakistan. Talking about the cooperation with Huawei Cloud in Pakistan and Abacus, MD of PESB, Mr. Osman Nasir mentioned how Cloud adoption in public sector of Pakistan will enable the Government of Pakistan to utilize latest technological solutions available in the ever-evolving ICT industry. CEO of Abacus Pakistan, Ms. Fatima Asad expressed thanks to Huawei's Latest Cloud technologies transfer cooperation and Cloud adoption across Pakistan.

## Huawei Highlights Secure Digital Transformation Solutions and Strategies for Middle East Enterprises at GISEC 2022

At GISEC 2022, Huawei, a leading global provider of information and communications technology (ICT) infrastructure and smart devices, is showcasing its latest cutting-edge, secure digital transformation solutions, demonstrating use cases and discussing best strategies to protect Middle Eastern enterprises in the current digital era. Huawei will demonstrate its resilient communications networks, 5GtoB solutions, scenarios and latest use cases in enabling industrial digitization, intelligent cloud solutions, smart low-carbon datacenter, smart campus solutions, end-to-end cyber security assurance system, 5G security, cloud security, secure digital power solutions, and secure networks at the leading cybersecurity event. During the event, Huawei regional and global experts will participate in various panel discussions and deliver keynotes on trending security topics. On day one, Aloysius Cheang, Chief Security Officer of Huawei UAE, will deliver a keynote speech discussing Huawei's Projects of the 50 to enable the UAE to become a global cyber-security hub, and Emaad Ahmed, Principal Solution Architect & Network Architecture Transformation Chief Expert, Huawei UAE, will deliver a keynote address on the 5GtoB

Hype around slicing. Also taking place on day one is a keynote address by the Huawei Middle East Digital Power department on the latest trends in solar power generation on the X-Labs Stage. Additionally, Ibrahim Alshamrani, Chief Security Officer of Huawei Saudi Arabia, will shed light on intelligent application security and privacy protection at GISEC's KSA Stage on day two, and Aloysius Cheang, Chief Security Officer of Huawei UAE is giving a keynote speech highlighting Integrated Communication Platform and will participate in a panel discussion on what governments are doing to ensure cities are secure by design. On GISEC's Qatar Stage, Kamal Zian, Chief Security Officer of Huawei Gulf North, will spotlight Huawei's role in delivering a secure FIFA World Cup 2022 in Qatar on day three. Jiawei Liu, CEO of Huawei UAE, commented: "As organizations in the Middle East increase their adoption of the latest advanced digital technologies to support their digital transformation goals, the risks and challenges of cybersecurity will evolve. At Huawei, cybersecurity is an integral part of all our products and solutions, right from the conceptualization stage. Therefore, at GISEC 2022, Huawei is looking forward

to connecting with the regional business leaders from all industries and sectors and showcasing our wide range of secure digital transformation solutions and strategies that can help them better protect and defend themselves." Aloysius Cheang, Chief Security Officer, Huawei UAE, said: "Through the 'Projects of the 50', the UAE is on track to become a global hub and testbed for advanced technologies and innovation. A strong cybersecurity posture and framework is a critical component for the Project of the 50, and at GISEC 2022, we will highlight ways in which the UAE can become a global cybersecurity hub as well." Huawei has long worked with organizations like the GSMA, 3GPP, OIC-CERT, and other industry stakeholders to examine emerging cybersecurity risks and promote independent certifications and standards such as the GSMA/3GPP NESAS Security Assurance Specifications and GSMA 5G Cybersecurity Knowledge Base. In addition, Huawei is now driving the adoption of the OIC 5G Security Framework developed by the OIC-CERT 5G Security Working Group to enhance cybersecurity measures proportionate to the risk landscape emerging from digital technology advances.

# Huawei Receives Sustainable Development Best Practice Award from UNGC Network China

Huawei has received the 2021 United Nations Global Compact (UNGC) Best Practice Award from UNGC Network China for its contribution to sustainable development and the UN Sustainable Development Goals. The award is given annually to companies who demonstrate a strong contribution to sustainable development in China and on a global level. As part of its Tech for a Better Planet campaign, Huawei has run multiple projects that have supported environmental protection and the fight against climate change over the last year.

In terms of its own products and solutions, Huawei has promoted the development of a circular economy by reducing its consumption of raw materials, improving resource use efficiency, and developing environmentally friendly materials at the product design stage. For example, its hydrophobic coatings for phone packaging have reduced the use of traditional coatings made from disposable plastic by 46.3 tons for every 10 million phones. Huawei also recently turned its attention to the digital power sector, developing digital power technologies that have

helped customers generate 482.9 billion kWh of green power, saving 14.2 billion kWh of electricity and reducing carbon dioxide emissions by 230 million tons. Huawei has also partnered with multiple international organizations under its TECH4ALL initiative to launch a series of nature conservation projects designed to safeguard ecosystems and biodiversity. Through its initiatives and technologies, Huawei successfully minimized its own carbon emissions in 2021 while helping customers and partners from around the world implement low-carbon strategies.

# UAE's Cybersecurity Council to Collaborate with Huawei in Strengthening Ecosystem's Capabilities

The UAE's Cybersecurity Council has signed a Memorandum of Understanding with Huawei to collaborate in the strengthening of local strategies and efforts related to cybersecurity. The agreement was signed at the GISEC 2022 cybersecurity conference taking place between March 21 – 23 at the Dubai World Trade Center. As per the memorandum, both parties will work towards strengthening strategic collaboration in cybersecurity based on the Public-Private-Partnership model. This will help promote cybersecurity

innovation, drive development in cybersecurity capabilities, and nurture a strong cybersecurity ecosystem. H.E. Dr. Mohammad Hamad Al Kuwaiti, Head of Cybersecurity, UAE Government, said: "We are excited to be signing this agreement with Huawei in line with our mission of developing a comprehensive cybersecurity strategy and creating a safe and strong cyber infrastructure in the UAE. This step will also help drive our efforts to establish the UAE as a leading global hub for cybersecurity for the benefit of

the nation." In addition, the agreement aims to create an open, transparent, and trustworthy environment between the UAE Government, Huawei, and other technology vendors. Aloysius Cheang, Chief Security Officer at Huawei UAE, said: "We are honored to be partnering with the UAE Cybersecurity Council. Huawei is committed to supporting the UAE's efforts as the country accelerates its digital transformation journey. As cyber threats are continuously changing, our agreement with the Council will help us work towards providing a cybersecurity ecosystem that is safe and secure. This partnership will also help recognize Huawei's long-term commitment to sustainable development in the UAE as a top digital hub globally." As part of the memorandum, both parties have agreed to work together in building visibility and promoting thought leadership in the area of cybersecurity, cooperating in the field of cybersecurity research and development through an independent think tank that both parties will establish, and jointly establishing a Cybersecurity Center of Excellence to deliver talent training that addresses the cybersecurity capacity-building needs for Emiratization. The partnership comes as spending on security including hardware, software, and services is also on the rise across the region, predicted to grow 7% to USD3.76 billion in 2022 according to IDC.

# Salam Partners with Nokia to Boost Digital Drive

Salam, a leading Saudi company in the ICT sector, has signed a partnership agreement with Nokia for implementation of two projects to enhance its digital infrastructure in Saudi Arabia, using the latest technologies with advanced capabilities. Radwan Al-Mufleh, Salam Chief Commercial Officer, said: "This agreement with Nokia, one of the world's largest and leading global companies in the ICT sector, supports Salam's efforts and future plans to develop our digital infrastructure to provide our customers advanced digital services and best broadband experience using the latest high-speed bandwidth technologies. "The project further strengthens our company to continue playing a leading role in supporting our nation's digital transformation journey, and achieving the Saudi Vision 2030 aimed at building a prosperous digital economy and a better future for the Kingdom." Roger Ghorayeb, Customer Team Head for Middle East Growth Accounts, at Nokia said: "We are proud to have been chosen by Salam to play a vital role in modernizing its digital infrastructure and providing pioneering services in the Kingdom. "We are committed to supporting its vision to help individuals reach new heights in digital era, and business customers be smarter, more digital, more integrated and secure. We are confident that this partnership is just the beginning of a journey and will last long, creating a strong positive impact for the people and businesses in the Kingdom." Nokia is upgrading Salem's existing fiber access nodes in its central offices in three cities in the Kingdom, with 10x speed increase. Nokia's solution will modernize Salam's existing GPON networks to a future proof, highly scalable solution, leveraging the Nokia's Quillion chipset-based line cards. The deal also includes fiber modems for customer's homes in addition to Nokia's 5G Fixed Wireless Access gateways featuring WiFi 6, Easy Mesh compatibility and eSIM capabilities, and Nokia's FastMile Controller. This agreement comes as a continuation of a series of significant and fruitful agreements signed by Salam with many leading local and global companies to boost its user experience with the latest technologies, and to support its efforts in providing the best ICT services to all its customers in the government sector, companies and individuals, with high quality services at competitive prices.

# Nokia and Rakuten Mobile Demo 1Tbps Per Channel Transmission Capability in Live Network

Nokia and Japan's new fourth mobile operator, Rakuten Mobile, have announced the successful demonstration of what they claim is the first live 1Tbps per channel transmission over the latter's commercial Dense Wavelength Division Multiplexer (DWDM) network, a speed increase of 500% on its existing network running at 200Gbps. The trial reportedly took place over two days in January 2022 and connected data centers located 135km apart in Japan's Kanto region. In a press release dated 30 March, the Finnish vendor said the 1Tbps speed was achieved using coherent transmission powered by its Photonic Service Engine (PSE) supporting 1Tbps capacity over a 150GHz optical spectrum. It went on to say the test 'demonstrated the ability to deliver 32Tbps per fiber in C-band which can be expanded to 64Tbps by adding L-band over a Nokia DWDM line system used in Rakuten Mobile's optical network, vital to providing maximum capacity for the ever-increasing data demands and to support the latest generations of routers delivering 800Gbps Ethernet.' The trial comes as Rakuten Mobile is scaling up its network capacity to enable 5G connectivity, video, and other new applications. Commenting, Tareq Amin, Representative Director and CEO of Rakuten Mobile, said: 'We are delighted with the performance of 1Tbps per channel on our optical network in collaboration with Nokia. This technical milestone will allow us to maximize bits per fiber and achieve improved power efficiency. The enhanced capacity will also support our traffic growth, deliver higher bandwidth and enable Rakuten Mobile to provide new service offerings.'

# Nokia's SaaS-Based Data Marketplace Selected by Equideum Health to Power Its Healthcare Blockchain Solutions

Nokia announced that it has been selected by Equideum Health to help the US-based company jointly develop and deliver healthcare use-cases by using Nokia's Data Marketplace (NDM) solution delivered through its Software-as-a-Service (SaaS) model. NDM, launched in 2021, facilitates secure sharing of data and AI models in order to drive digital transformation and data monetization for ecosystem players. Taking those NDM capabilities in conjunction with its SaaS delivery model, Nokia will enable healthcare and life sciences blockchain leader Equideum Health to launch new use-cases faster and achieve time-to-value quicker. Equideum Health is a spin-off from ConsenSys, the leading Ethereum software company. With the amount of healthcare-related data being generated at the network edge rising exponentially due to factors like increased usage of healthcare wearables and connected devices, the Equideum Exchange will securely process, enrich, assemble, and analyze data using blockchain, decentralized AI, and privacy-preserving technologies; and securely exchange this data in a multi-party ecosystem. As part of that effort, the partnership aims to accelerate Equideum Health's privacy-preserving Clinical Trials Matching capability. Currently, to shortlist patients for clinical trials, companies invest significant money and time in data acquisition, and face issues

like poor data quality, compliance, and cost of intermediaries. The collaboration aims to help pharmaceutical companies simplify and optimize the clinical trial life cycle through faster patient identification; the use of advanced patient consent mechanisms; patient remuneration via the use of digital wallets; and enhanced patient transparency on how data is being used. Utilizing NDM through Nokia's secure SaaS delivery model provides global reach and scalability of the solution; and, consumed via a monthly subscription, improves business agility while reducing operating costs. Nokia and Equideum are scheduled to hold a webinar on April 14 to further discuss their partnership. More details can be found here. Heather Leigh Flannery, Founder and Chief Executive Officer at Equideum Health, said: "Our

mission is to drive health outcomes and equity by breaking down data silos and revolutionizing the way health and health-relevant information is accessed and shared. We are very pleased to be taking another step toward delivering on those goals through this partnership with Nokia and leveraging its NDM solution through its SaaS model." Friedrich Trawoeger, Senior Vice President, Cloud and Cognitive Services at Nokia, said: "Nokia Data Marketplace gives our customers a secure and compliant way to access distributed data sets, where AI/ML capabilities extract insights to improve healthcare. Nokia's SaaS delivery model will allow us to scale our partnership with Equideum Health and help us realize our shared goals of providing world-class blockchain solutions to transform the healthcare sector."



# Nokia Demonstrates Live D-Band Microwave Backhaul Connection

Nokia announced that it has successfully demonstrated a live microwave connection utilizing D-Band spectrum (130-175 GHz). D-Band enables much higher bandwidth than other microwave bands and will serve as an ultra-high-capacity extension for 5G backhaul and fronthaul in dense urban environments. The trial, which was conducted by Nokia utilizing Nokia Bell Labs technology, is investigating how higher frequencies beyond 100 GHz, can support the increased capacity requirements of mobile networks. The proliferation of 5G networks has seen

increasing demand for high-capacity, high-speed microwave backhaul to support evolving network requirements and growing traffic. This requires the use of higher frequency bands previously not used for this purpose. These bands can support large channel bandwidths and handle up to 50 times more traffic than microwave bands typically used for mobile network backhaul. D-Band is expected to be mostly used in dense urban environments, thanks to the small form factors of the products involved. The trial used an integrated dual-transceiver using

a 2 GHz channel bandwidth operating over a distance of approximately 200 meters; this solution was developed by Nokia Bell Labs. Giuseppe Targia, Vice President, Microwave Radio Links at Nokia said: "This trial demonstrates how we are continuing to push the boundaries to deliver best-in-class connectivity as the demand for 5G services grows. The D-Band will be important in delivering high-capacity 5G connectivity in the future. We continue to drive important innovations that support our customers with coverage and capacity where it is needed."

# Nokia Selected for Software Defined Network Controller Trials for Vodafone's Fixed Access Network

Nokia announced it has been solely selected to work with Vodafone on the evolution of the software defined network manager and controller (SDN-M&C) services for the company's multi-access fixed network technology. Under the agreement, both companies are conducting proof-of-concept trials in Europe. Based on the successful outcome of these trials, Vodafone and Nokia aim to deploy the technology more widely later this year. Vodafone is one of the largest fixed access providers in Europe with 143 million marketable Next Generation Network (NGN) broadband homes. The SDN management and control functions will be used to simplify, automate, visualize, optimize and enhance Vodafone's broadband networks, and support Vodafone's strategy of providing network-as-a-platform (NaaP)

and other customizable services. Gavin Young, Head of Fixed Access Centre of Excellence at Vodafone, said: "We are driving simplification and automation throughout our network and IT systems across Europe and Africa to further improve the customer experience and support the growing number of connected devices. The last few years have proven that the resilience of economies depend on our ability to quickly respond to changing societal needs. Nokia's Altiplano solution will enable us to help our customers adapt to new developments even quicker." Vodafone is using the Altiplano SDN-M&C to build a single-pane-of-glass controller to automate its network operations. Vodafone selected Altiplano for its unique capability to work across its multi-generational, multi-technology

and multi-vendor access networks. Sandy Motley, President, Fixed Networks at Nokia, said: "Our SDN-M&C platform is built with openness in mind. Nokia's SDN Controller platform provides open and standardized APIs and leverages open source where applicable. The result is our Altiplano Access Controller can manage and control any SDN-native, disaggregated, legacy and third-party equipment and is highly customizable to suit operator needs now and in the future. In addition to the rich set of built-in applications our customers can add their own or third-party applications to customize and further automate the network." In September, Vodafone announced it is working with Nokia and other partners for new broadband standards to pave the way for faster, open broadband networks.

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**PCCW Global**

# PCCW Global Doubles Capacity on PEACE Cable System with Infinera's ICE Technology

Infinera and PCCW Global, a leading international telecommunications service provider, announced today the completion of a significant deployment on the PEACE cable system between Marseille, Cyprus and Abu Talat. Utilizing Infinera's ICE technology, PCCW Global now offers network operators the ability to significantly increase capacity per fiber pair on these critical Middle East and Mediterranean fiber routes. Network operators are continually expanding cloud-based services to create more connected communities, driving the need for subsea network upgrades globally. PCCW Global's capacity upgrade on the PEACE cable system is one of a series of upgrades planned for this year. As the first and only open cable system in the Mediterranean Sea, the PEACE cable system can support numerous service providers in the region. By leveraging Infinera's ICE technology on the GX Series Compact Modular Platform, PCCW Global is able to reach individual wavelength speeds of 650Gbs resulting



in more capacity, with less hardware, and providing up to 25 terabits per fiber pair. The combination will enable network operators to efficiently provide high-capacity services between the Middle East and the Mediterranean region. Mr. Haitham Zahran, Vice President of EMEA Subsea Cable Systems, PCCW Global, said, "The PEACE cable system is the highest-performing open cable system connecting Asia, Europe and Africa. By collaborating with Infinera to upgrade our network segment to increase fiber capacity, we

are able to offer customers industry-leading innovation that provides the most reliability and highest capacity fiber pair available." Mr. Nick Walden, Senior Vice President of Worldwide Sales, Infinera, said, "Infinera's subsea solutions have historically provided network operators the greatest amount of value from their fiber assets using innovative, industry-leading technology. Infinera's ICE solution enables PCCW Global to offer network operators open, scalable and flexible services to meet the region's growing bandwidth demands."

# Viu is the Number 1 Premium Video on Demand Service in Greater Southeast Asia with the Highest Monthly Active Users in 2021 According to MPA's AMPD Report



Viu, PCCW's leading pan-regional OTT video streaming service, announced today that the platform was the number 1 premium video on demand platform in terms of the number of Monthly Average Users (MAUs) in Greater Southeast Asia*, following the latest Media Partners Asia (MPA) AMPD Research report for Q4 2021*, released on March 28. The report revealed that Viu's MAUs is once again ahead of other major streaming platforms in Greater Southeast Asia and continued to be the highest for all quarters of 2021. The platform also ranked second in both paid subscribers and premium video streaming minutes amongst major video streaming platforms in Greater Southeast Asia in Q4 2021. Ms. Helen Sou, Chief Business Officer, Asia, Viu, said, "Viu's consistent performance in a very competitive region, coupled with our significant growth in monetization in 2021, firmly entrenched Viu as a leading player in this part of the world. Our content has clearly resonated with our Asian audience, and our freemium business model has consistently proven popular with both consumers and ecosystem partners. As the destination of premium Asian content, we will continue to invest in stories that are relevant, from both our expanding content partnerships as well as with Viu Original productions." In 2021, the Viu Original production strategy proved to be successful in providing differentiation in the markets. Compared to 2020, the top 10 Viu Original titles showed stellar growth of over 94% in video views and an exponential increase of over 200% in video minutes. This helped drive subscriptions by 58% from 5.3 million in 2020, to 8.4 million in 2021. With the focus on delivering content that has an international appeal and yet is rooted in what is familiar culturally in Asia, Viu Original productions paved the way for newer monetization avenues in non-Viu territories like the Americas and Europe, stretching over 20 platforms worldwide. In addition, within Viu markets, these productions also provide a great opportunity for working with brands on product placements and sponsorships. Positive reception for local original content in markets such as the Philippines, Thailand and Indonesia will see production increase dramatically, with 30 titles slated for release across six languages. Titles that will be released in April and May as part of this plan include the second season of titles Pretty Little Liars and Assalamualaikum Calon Imam, whose respective first seasons were well received not only in Indonesia and Malaysia but also around the region as well. Thailand will have two highly anticipated titles released in the coming months, including rap musical Wannabe featuring Thailand National Film Association Award winner "Nonkul" Chanon Santinatornkul and veteran Thai Hip Hop artist "Tan" Jawpraya Tanyuk. Close Friend was extremely well received in Thailand too during its first season and returns for a second season at a time where online buzz for the title and the genre is at an all-time high in the country. Following the success of the Korean Viu Original titles in 2021 such as Now We Are Breaking Up, two Korean Viu Originals are set for release in the upcoming months. Based on a web novel of the same title, Again My Life will premiere in April starring multiple award-winning actor Lee Joon Gi. Also slated for release in the same month is the romantic comedy From Now On, Showtime! casting award winner Park Hae Jin and is directed by the man behind one of the classic fantasy romantic comedies, Strong Woman Do Bong Soon. Viu continues to invest in working with top creative talents in the industry to produce original titles that continue to appeal across the region, cementing its reputation as the hub of the best Korean and Asian content. iu-ers can catch these new titles and Viu's extensive library of fan favorites, First-on- Viu and exclusive titles on the Viu app, which can be downloaded for free on App Store, Google Play, and selected smart TVs, as well as on the web at www.viu.com.



# solutions by stc Launches New Digital Channel Quick Pay for B2B Customers

solutions by stc, the specialized business arm of Kuwait Telecommunications Company – stc, announced the launch of its new digital channel 'Quick Pay' , a seamless payment channel designed specifically for the Company's B2B customers. The launch of the new payment channel falls in line with the Company's strategy to enable digital transformation and elevate the quality of services available to the B2B segment. In a statement, solutions by stc revealed that Quick Pay will allow B2B customers to settle all their bills in one location and with a click of a button. The new service aims to simplify the bill settlement process through a convenient and reliable payment channel covering the full breadth of solutions by

stc's offering line, without needing customers to log in. solutions by stc stated that the payment gateway will be easily accessible to customers on www.stc.com.kw/ business /EN website where they can pay for multiple lines at once, in addition to payment by contract level, and the option to copy or share a link by WhatsApp, SMS, or email. solutions by stc commented that Quick Pay will be available to all existing B2B customers and will be the dedicated payment gateway for all business products and services. This initiative comes as an additional step taken by solutions by stc to enhance the digital experience for its customers and implement its own digital transformation strategy in line with Kuwait Vision



2035. The Quick Pay channel will improve the payment process for B2B customers with direct online invoicing to keep track of all settled bills and payments. solutions by stc stated that customer satisfaction is our number one priority and we develop new functionality and simplified services with this in mind. We are continuously adding new services to the website based on our customers needs and requirements, improving its functionality to help customers complete their required transactions in the most efficient and convenient way possible. Following its strategy to offer business solutions all under one roof, solutions by stc has taken great strides to introduce new products and services that cater to the Company's growing and diverse customer base. These include a range of connectivity solutions through stc such as fixed or mobile 5G technology led by stc, as well as ICT, IoT, AI, and other IT products and services. solutions by stc will continue to introduce pioneering technology enabled solutions based on the latest innovations in this digital era, serving as the preferred gateway to its customers through digital transformation. solutions by stc is committed to fulfill and support the needs of the startups and SMEs by offering flexible, scalable, guaranteed and reliable solutions and services that showcase the strength of our 5G through stc network and ICT integrated solutions and caters specifically to their business needs in the recovery period of COVID – 19.

# stc Bahrain to Launch Region's First-Of-Its-Kind Technology Park in Partnership with the Ministry of Transportation and Telecommunications

stc Bahrain, an operating company part of stc Group, a world-class digital enabler, has announced a strategic partnership with the Ministry of Transportation and Telecommunications to launch a first-of-its-kind technology park in the region. stc Bahrain will be leasing 55,000 square meters' land from the Government of Bahrain to develop the project in Al-Qurain. The project will also be one of the first initiatives in energy efficiency, driving local innovation towards the use of renewable energy. The new technology park will push new boundaries in the digital field and contribute to Bahrain's digital economy in line with Bahrain's Economic Vision 2030. In addition to diversifying the economy, the project will focus on uplifting local talent within the tech field. Furthermore, it will offer benefits to local citizens through the localized storage of data that will be closer to end users. Eng. Kamal bin Ahmed Mohammed, Minister of Transportation and Telecommunications, said: "We are pleased with the launch of such an initiative which serves in achieving the objectives of the Fifth National Telecommunications Plan and the recently launched ICT and Digital Economy Strategy which aims at further developing the Information and Communications Technology (ICT) sector in the Kingdom in line with various initiatives put forth to achieve the Kingdom's comprehensive development goals, led by HM King Hamad bin Isa Al Khalifa, and in establishing a world-class digital infrastructure." Eng. Mohammed Alhakbani, stc Bahrain Chairman of the Board, said: "We'd like to thank the Government of Bahrain for its trust in stc Bahrain to deliver one of the most impactful technology parks that will enable building a data Mena hub as part of stc Group strategy dare2.0. We are



hoping to continue our strategic partnership to develop more tech projects in the future that will empower the digital economy." Eng. Nezar Banabeela, CEO of stc Bahrain, said: "We are very excited to be at the forefront of one of the most important technology projects within Bahrain. The new technology park will provide the foundation for the digitization of sectors across Bahrain, nurture local talent, and host the growing demand for data. As digital enablers, we are proud to be one of the key players leading the path of Bahrain's journey to digital transformation and empowering the tech ecosystem." The project is in line with stc Group strategic objectives to build a Mena digital hub and invest in breakthrough technologies as a global telecommunications and ICT player. stc Bahrain has been instrumental in driving transformation within Bahrain – a population that is tech-savvy with an advanced digital infrastructure.

# stc Wins "Best M2M Technology Solutions Provider – Kuwait 2021" and "Best Corporate Governance Telecom Company – Kuwait 2021" International Finance Awards



Kuwait Telecommunications Company – stc, a world-class digital leader providing innovative services and platforms to customers, enabling the digital transformation in Kuwait, has been awarded the "Best M2M Technology Solutions Provider – Kuwait 2021" and "Best Corporate Governance Telecom Company – Kuwait 2021" from International Finance ("IF"), a renowned financial publication that recognizes industry talents, leaderships skills, industry net worth and capability on an international platform. The award was presented to stc during the International Finance Awards ceremony held in Dubai, UAE on March 24th, 2022. After careful consideration and an extensive review performed by IF's qualified research team, stc emerged as the winner of the two awards declared on the strength of the applications submitted by stc and its business arm solutions by stc teams, as well as each team's past accomplishments. During the ceremony in Dubai, Danah AlJasem – General Manager of Corporate Communications at stc received on behalf of the Company the "Best M2M Technology Solutions Provider – Kuwait 2021", and the "Best Corporate Governance Telecom Company – Kuwait 2021" awards on behalf of stc. Commenting on the awards, stc CEO, engineer Maziad Alharbi said "2021 was an exceptional year across all the standards due to the company's refreshed strategy and the dedication of its employees to deliver their best in order to achieve company's desired goals and meet the individuals and enterprise customers' needs, as well as creating an added value and achieve better returns for its shareholders. He added "Our success would also not have been achieved without the ongoing support of our various stakeholders. Therefore, we placed great consideration in developing and evolving a corporate governance framework that enables stc to demonstrate its level of innovation, efficiency, and ability to adopt

best practices while protecting the interests of all stakeholders including investors, employees, suppliers, customers, government entities and the local community." Alharbi added, "As for our valued customers, whether individuals or corporates, our focus as a pioneering telecom and digital solutions provider is to offer a diverse range of innovative products and services with a focus on the digital as well as advanced integrated communications information solutions and advanced technical solutions services. Through our specialized business arm, solutions by stc, we have introduced a variety of flexible, automated, and reliable solutions that can aid in accelerating the digital transformation strategies of businesses through new-to-market applications. In this regard, the digital transformation strategy that was developed and implemented by stc over the past few years has also been a key success factor that helped the company in its many contributions to the local economy, government initiatives and the growing demand for digital solutions and information technology" In appreciation of receiving the awards, Alharbi said, "We are proud to receive these awards from IF which recognize stc's leading position in the market and identifies the various areas of growth the Company has focused on in the recent term driven by its corporate strategy. On behalf of stc, I would like to thank all those who played a role in implementing the Company's strategy that resulted in achieving these awards despite the difficult times we faced due to the COVID-19 crisis. I would like to also shed light on the outstanding teamwork and dedication of the stc family who played the bigger role in having stc awarded from IFM. I would also like to thank the IF team for their diligent assessment process and cooperation." In its statement, stc highlighted that the corporate governance award recognizes the standards and commitment it continuously upholds to provide stakeholders with the highest degrees of transparency, accountability, and competence. Through an established mechanism of procedures and policies, stc has shaped its culture to promote integrity and a robust framework applicable across all levels, reinforcing its foundation for sustainable success. This in return has aided the Company in fostering a wholly supportive corporate culture that addresses the needs, aspirations, and hopes of stakeholders as expressed in stc's various policy statements, while exceeding the requirements set by regulators. In terms of the M2M technology award, solutions by stc mentioned that it currently provides one of the most advanced 5G and 4G M2M connectivity solutions in the market through stc. This has allowed machines to exchange data without human interface, in return redefining traditional and outdated business processes. These solutions ease the communication channels between machines using sensors, opening the possibility for systems to monitor themselves and automatically responding to changes within the environment. Through various regional and international partnerships, solutions by stc also provided a variety of traditional applications ranging from POS, ATM, up to innovative CCTV, connected cars, fleet management and surveillance solutions among others.

As the first business solutions provider to enable IoT connected cars in Kuwait, solutions by stc partnered with local dealers to provide in-vehicle connectivity solutions. This opened the doors to new opportunities in the automotive industry through various advanced applications that enable digitization for smart transport and in-vehicle solutions. Customers seeking such solutions benefited from the advanced transportation tracking system, enabled by M2M, as well as services such as automatic attendance marking, visual detection system to ensure passenger safety, and tracking through mobile apps. M2M connectivity not only provides fleet management solutions but also empowers and enables automotive producers to evolve their vehicles to unprecedented remote data analytics, assistance and VAS services making vehicles not only a means of transportation but also a true digital experience in themselves. It is worth mentioning that International Finance is a premium business and finance magazine published by UK's International Finance Publications Limited. The magazine and website have a growing readership in Europe and the Middle East, especially in the UAE, Saudi Arabia, Qatar, the Sultanate of Oman, and Kuwait as well as in select fast-developing African nations. International Finance also has a growing readership in Asia Pacific. This award adds to the many local, regional, and international awards, which stc Kuwait has won including "Corporate Governance and Stakeholder Protection award by CFI. co, as well as the "Outstanding Leadership and Growth" award from "MEA Business" magazine, and the Best Leading Corporate for Investor Relations for the year 2021.

# Tech Mahindra and Airtel Announce Partnership to Grow India's Digital Economy

Bharti Airtel ("Airtel"), India's premier communications solutions provider, and Tech Mahindra, a leading provider of digital transformation, consulting and business re-engineering services and solutions, announced a strategic partnership to build and market innovative solutions for India's digital economy by bringing together their core strengths. Airtel and Tech Mahindra will co-develop and market 5G use cases in India. Airtel has been spearheading 5G demos and testing in India while Tech Mahindra has developed world-class 5G applications and platforms. Airtel and Tech Mahindra will set up a joint 5G innovation lab for developing Make in India use cases for the Indian and global markets. The two companies will also bring to market customized Enterprise Grade Private Networks, which will be at the core of the digital economy. These solutions will focus on combining Airtel's industry leading integrated connectivity portfolio of 5G ready mobile network, Fiber, SDWAN, and IoT along with Tech Mahindra's proven system integration capabilities. The companies will initially focus on segments such as Automobiles, Aviation, Ports, Utilities, Chemicals, Oil & Gas and expand to other industries going forward. Airtel and Tech Mahindra will also offer secure Cloud and Content Delivery Network (CDN) solutions to businesses. With enterprises rapidly moving to cloud based platforms as part of their digital transformation journeys, Airtel has built a formidable Hybrid Cloud portfolio with Airtel Cloud, Airtel IQ (CPaaS) alongside CDN offerings. Further, the two companies will explore leveraging Tech Mahindra's technological expertise to support Airtel in Cloud Engineering, implementation of tools for Cloud Orchestration. Ganesh Lakshminarayanan, CEO-Enterprise Business, Bharti Airtel said: "Airtel and Tech Mahindra have a shared vision of supporting the growth of India's digital ecosystem. We are delighted to join forces with Tech Mahindra to bring to market a range of cutting-edge digital solutions for the emerging requirements of enterprises. With proven technology capabilities and deep customer trust enjoyed by the two brands, we believe this is a win-win partnership." Manish Vyas, President, Communications, Media and Entertainment Business, and CEO, Network Services, Tech Mahindra, said: "5G ecosystem will unlock immense opportunities for industries across sectors to improve productivity and enhance customer experience through digitally powered new-age platforms and solutions. We are excited to partner with Airtel to provide innovative and cutting-edge solutions for enterprise customers. In line with Tech Mahindra's NXT.NOWTM framework, this collaboration is focused on offering next-generation services to the Indian market by enabling transformation via network, cloud engineering and customer experience." As part of NXT. NOWTM framework, which aims to provide 'Seamless Customer Experience', Tech Mahindra focuses on investing in emerging technologies and solutions that enable digital transformation and meet the evolving needs of changing customers.

# Tech Mahindra Partners with APPSLINK to Deliver an Integrated Localized Payroll Solution for Oracle SaaS Customers

Tech Mahindra, a leading provider of digital transformation, consulting, and business re-engineering services & solutions, announced a collaboration with APPSLINK, a Global award-winning Oracle Partner specializing in Oracle Human Capital Management (HCM) and Enterprise Resource Planning (ERP) implementations. This partnership is aimed at addressing country-specific payroll coverage for Oracle SaaS Customers and focusing on standardization, compliance, and statutory requirements in payroll for organizations of every size and in countries where Oracle payroll localization is not present. Ram Ramachandran, Senior Vice President and Head, Middle East and Africa, Tech Mahindra, said, "We are transforming the way payroll processes and information are leveraged within the enterprise. As part of strengthening our payroll offering, we are happy to have partnered with APPSLINK to give customers a seamless technology platform and services to manage their localized payroll. Payroll7 assures intelligent process automation, cross-border compliance, and actionable insights by centralizing payroll and treasury processes on a single cloud platform. We believe that this partnership will take Oracle HCM cloud to a newer scale and offer their customers an unparalleled service that they have been looking for." Payroll7 is a state-of-the-art, cloud based localized payroll solution that is built on a rule-based engine. Payroll7 can co-exists with Oracle SaaS HCM modules as an integrated module. As part of the partnership, Tech Mahindra and APPSLINK will leverage the combined strengths and collective core competencies of the organizations to help enterprises take better advantage of cloud payroll solutions. Tech Mahindra will bring its extensive Saas/PaaS/IaaS capabilities while APPSLINK brings its proven business expertise, valuable insights, and a long track record of enterprise-grade Payroll implementations & managed services. Moh'd Muwafaq Ibrahim, CEO, APPSLINK, said, "Tech Mahindra's Oracle HCM Cloud solution competency enables HR teams with higher levels of agility, flexibility and creates a truly 'Employee Centric' organization. We are proud to join forces with Tech Mahindra – combining our extensive expertise and experience in Payroll solutions with Tech Mahindra's Oracle cloud capabilities, which will bring our existing and new customers unprecedented value. This partnership will be beneficial for us to reach different geographies and provide value-added results. It will also help us simplify payroll process, which can be integrated with any industry or company size or workforce." Currently the localization is available in majority of Asian, African, European countries. Leading NGO in Africa covering over 10+ countries run their payroll engine on Payroll7 solution implemented on Oracle HCM cloud by Tech Mahindra. This allows them to handle country-specific statutory, legal, and regulatory requirements while meeting their unique payroll needs for large workforce. The partnership will be offered as horizontal solution across industry verticals. Tech Mahindra believes in DigitALL philosophy for comprehensive Business Transformation. Digital technologies catalyze the transformations – they humanize businesses by helping them think, sense, connect, communicate, secure and act better than before. As part of NXT.NOW™ framework, which aims to enhance 'Human Centric Experience', Tech Mahindra focuses on investing in emerging technologies and solutions that enable digital transformation and meet the evolving needs of the customer.



# Tech Mahindra and Cisco Collaborate to Drive 5G Modernization with Routed Optical Networking

Tech Mahindra, a leading provider of digital transformation, consulting, and business re-engineering services and solutions, has announced that it has collaborated with Cisco, the worldwide leader in technology that powers the Internet, to drive the infrastructure modernization of optical transport networks with the introduction of Cisco routed optical networking. The collaboration aims to simplify the Internet transport networks by leveraging state-of-the-art optical and routing technologies to converge services over an IP Infrastructure enabling a high degree of automation. The collaboration will empower service providers to reduce their operational expenses and their total cost of ownership. Tech Mahindra's vast and diversified experience in building IP based, software-driven end-to-end 5G networks combined with the Cisco's Routed Optical Networking solution, will enable an end-to-end value proposition for service providers to reduce the complexity in their networks. Manish Mangal, Global Head of Business and 5G and Network Services, Tech Mahindra,

said, "5G connectivity, network intelligence, and edge computing are unleashing a whole new world of opportunities such as the delivery of immersive experience using Metaverse, Augmented Reality/Virtual Reality (AR/VR), among others. The network infrastructure of the future will need to be even more agile and software-driven, to bring such possibilities into life. As a trusted transformation partner, our mission is to help service providers re-imagine the future of connectivity and accelerate 5G adoption. Through this collaboration with Cisco, Tech Mahindra will make Routed Optical Networking solutions smarter, simpler, and easy to deploy and operate for service providers." Tech Mahindra is investing in both a routed optical networking lab at Bangalore, India and specialized services such as SDN-enabled transport, transport slice and segment routing, enabling customers to experience and operationalize the transformation of 5G transport infrastructure. This collaboration will enable service providers to merge IP and private-line services onto a single transport layer with standardized pluggable coherent optics. Shaun McCarthy, Vice President, Worldwide Mass-Scale Infrastructure Sales at Cisco, said, "As service providers are modernizing their 5G networks to offer new services, there is a critical need for the infrastructure to be agile, flexible, and simple. With Tech Mahindra's expertise in OSS/BSS and Cisco's routed optical networking portfolio, we can help customers expedite the transformation of their network while providing significant cost savings". As part of NXT.NOWTM framework, which aims to enhance 'Human Centric Experience', Tech Mahindra focuses on investing in emerging technologies and solutions that enable digital transformation and meet the evolving needs of the customer.

# Tech Mahindra to Offer Cloud Gaming as a Service to Telcos, Cable Companies and OEMS

Tech Mahindra, leading provider of digital transformation, consulting and business re-engineering services and solutions, announced the launch of its Cloud Gaming as a Service offering. This service will be offered through Tech Mahindra's cloud-based platform powered by Ludium Labs. The collaboration will help telecom providers, cable companies and OEMS (Original Equipment Manufacturer) offer another value-added service, which leverages their networks capabilities and, in the process, create an additional revenue stream. This service will dramatically improve end consumer access to gaming by eliminating the need for expensive gaming consoles and high-speed internet connections to access popular compute-intensive games. The B2B Cloud Gaming Service will enhance the AAA gaming experience - high-budget, high-profile games that are typically produced and distributed by large publishers. This will be achieved through a 5G powered low latency gaming service in the form of a plug and play solution with a library of over 150 AAA games stored in the cloud that can be accessed on any device, and processed on the edge. Manish Vyas, President, Communications, Media & Entertainment and CEO, Network Services, said, "The gaming industry has seen a spike in its users post the Covid era, leading to increased interests and opportunities for the industry to grow. The evolution of 5G with its inherent low latency will play a pivotal role in the adoption of experiences in the Metaverse and cloud gaming. We look forward to delivering NXT of cloud gaming with Ludium Lab, thereby delivering tomorrow's experience today to our enterprise customers." Until now, many gaming businesses have been unable to invest the necessary time and capital into developing such solutions as their commercial focus has been on game development itself. This partnership will improve accessibility for both businesses and consumers by leveraging Tech Mahindra's extensive expertise in the 5G, video and cloud engineering space, earned by working with top global media and entertainment companies, cloud service providers and mobile operators. Juan José Martin, CEO Ludium Lab, said, "Our commitment to deliver a user experience that is both enhanced and affordable is what makes us a leading player in cloud gaming.



We are thrilled to partner with Tech Mahindra, who we recognize as an important world leading technological company. Combining their expertise with our innovative virtualization technology and cloud gaming capabilities, our Cloud Gaming as a Service will be a major turning point in the market." Tech Mahindra and Ludium Lab will promote their cloud gaming services jointly, targeting leading companies in the telecommunications industry, such as mobile Original Equipment Manufacturers (OEM), cable operators, smart TV OEMs, and other organizations seeking to optimize connectivity for an enhanced gaming experience in today's growing digital world. Tech Mahindra's cloud gaming service will be a white labelled, customizable Software-as-a-service (SaaS) service that uses proprietary algorithms to dramatically reduce the cloud infrastructure required to deliver the games. The games hosted on Ludium Lab's platform are safe from piracy attempts as only Audio Visual (AV) streams are delivered to each gamer's device. As part of NXT.NOW™ framework, which aims to enhance 'Human Centric Experience', Tech Mahindra focuses on investing in emerging technologies and solutions that enable digital transformation and meet the evolving needs of the customer.

# Telecom Egypt Secures EUR150m in Funding from European Investment Bank (EIB)

Telecom Egypt has announced the signing of an agreement with the European Investment Bank (EIB), the lending arm of the EU, to secure a medium-term loan of EUR150 million (USD165 million) which it will use to expand its 4G network. In a press release regarding the development, Telecom Egypt noted that the funds will be used to support improvements to its mobile network coverage via the deployment of around 2,000 new mobile sites and the installation of additional capacity layers to its existing portfolio of mobile towers. The partnership, which was claimed to represent the EIB's largest mobile network loan in Africa, will reportedly strengthen the operator's infrastructure across the country, including in less densely populated areas. Commenting, Adel Hamed, Telecom Egypt's Managing Director and CEO, said: 'We are very pleased to secure this new credit line with EIB after extensive deliberations, including the presentation of our functional plan to improve our mobile network's scale, an objective that comes in line with the bank's priorities for developmental projects. Telecom Egypt will capitalize on its multiple financial resources, newly awarded spectrum and rich portfolio of valuable products, among other factors, to continue serving its growing customer base and strengthen its competitive position in the Egyptian telecom market.'



# Telecom Egypt Reports 74% Y-O-Y Increase in Net Profit In 2021

Telecom Egypt has reported a 16% rise in consolidated revenue for the year ended 31 December 2021, saying growth had been mainly driven by a 30% uplift in data revenues and 26% increase in infrastructure revenue. In the twelve-month period under review, Telecom Egypt recorded consolidated revenue of EGP37.088 billion (USD2.4 billion), up from EGP31.912 billion in FY 2020, attributable to the company's 'Home & Consumer' operations rising by 26.1% year-on-year, to EGP18.133 billion, while enterprise revenues (EGP4.699 billion) and domestic wholesale revenues (EGP5.847 billion) were up 19.5% and 25.2%, respectively. With regards to other key financial indicators, the company reported EBITDA of EGP14.193 billion for FY 2021, up from EGP11.126 billion a year earlier, while it recorded a notable uptick in net profit, which increased to EGP8.417 billion, up from EGP4.850 billion in FY 2020. In terms of operational highlights, Telecom Egypt reported that mobile subscriptions surged in the closing three months of 2021, increasing by more than 21% quarter-on-quarter (and more than 27% y-o-y) to reach 9.365 million. Fixed broadband subscriptions also continued to increase, with the operator's total standing at 8.028 million at end-2021, up from 6.947 million a year earlier. Similarly, fixed voice subscriptions remained on an upward trajectory, increasing by almost 12% y-o-y to 11.013 million.

# Telecom Egypt and AMS-IX Launch EG-IX, the First Open Access Internet Exchange in Cairo, Egypt

Telecom Egypt, Egypt's first integrated telecom operator and one of the largest subsea cables operators in the region, announces that EG-IX, the first open access internet exchange in Egypt, is live and available for customers as of today. The new Internet Exchange, powered by AMS-IX, is intended to enhance the digital experience of internet users in Egypt, Africa, and the Middle East. EG-IX is hosted inside Telecom Egypt's largest certified tier III data center located in Smart Village in West Cairo and named Regional Data Hub (RDH). RDH is connected with advanced fully meshed network securing the access to 14 submarine cable systems, to be increased to 18 cable systems by 2025. EG-IX is based on the IX-as-a-Service (IXaaS) solution offered by AMS-IX, the world leading interconnection platform service provider, and will act as an open access Internet Exchange Platform for large content delivery network, application and cloud providers and telecom carriers who are looking to enhance the digital experience of end customers in MEA region. IXaaS solution supports Telecom Egypt to set up and run a state-of-the-art internet exchange point in Egypt capitalizing on more than 25 years of AMS-IX's experience in such field. EG-IX Platform will support Telecom Egypt in its efforts to improve the quality of internet services in Egypt. Moreover, this exchange point will strengthen Egypt's position as an international connectivity hub, further highlighting the potential of the growing digital sector in the region. Adel Hamed, Managing Director and Chief Executive Officer, commented: "We are pleased to announce that EG-IX, which is hosted within the RDH, the largest tier III certified data center in Egypt is going live now in partnership with AMS-IX. The launch of the EG-IX platform will support Egypt's digital transformation plans. This step will not only enhance the country's internet ecosystem, but also support the ongoing regional efforts to establish a regional digital ecosystem that aggregates internet traffic from Africa and the Middle East." Peter van Burgel, AMS-IX CEO, said: "The launch of EG-IX is a great milestone for AMS-IX, Telecom Egypt and the Internet community. This new Internet Exchange will enable networks from all over the world to directly connect and exchange traffic, which will lower the cost of peering, reduce latency, and enhance the quality of the Internet for countless end users."

China Mobile | International

# Together we evolve

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

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

**BEST MOBILE/5G SERVICE INNOVATION**
Global Carrier Awards 2021

**BEST CLOUD INNOVATION**
Global Carrier Awards 2021

**BEST IoT SOLUTION PROVIDER**
CC-Global Awards 2021

180+ POPs    SMS    70+ Cable Resources

CUSTOMER    VOICE    CARING    IOT    INNOVATION

iCONNECT
Your Connect-All Carrier Solutions

INSIGHT    INTEGRATION

DATA

PRO    COLLABORATION    MOBILE

100T International Transmission Bandwidth

# Fast and Reliable 5G Connectivity – Healthcare's Hardworking Ally



Demand for widely available, high-quality healthcare services has never been higher. Recent years have seen healthcare organizations fast-track their adoption of biosensors, robotics, telehealth systems, health apps, and electronic health records, taking advantage of virtual reality, artificial intelligence, predictive analytics, and cloud computing. Enabling these technologies, 5G has made an immense contribution, with a host of valuable innovations already integrated into healthcare settings.

5G represents a huge leap for both cellular technology and healthcare by providing the connectivity for a new health ecosystem that can meet the needs of patients and providers accurately, efficiently, cost-effectively, conveniently, and at a substantial scale. MarketandMarket Research predicts that the 5G healthcare market will be worth USD 3,667 million by 2026, growing at a CAGR of 76.3% from an estimated USD 215 million in 2021.

**China Mobile 5G and the pandemic response**

The unprecedented emergency caused by the global outbreak of COVID-19 spurred China Mobile to rise to the challenge and rapidly expand applications for 5G in healthcare environments. The value of 5G livestreaming and video monitoring was the most intuitive application of 5G in the early days of the pandemic, as healthcare workers bravely faced a novel infectious disease.

**5G empowers healthcare professionals to be where they are needed most**

Professor Zhong Nanshan of the Chinese Academy of Engineering was the first to conduct remote consultations for severe COVID-19 patients, using China Mobile's Cloud video streaming system to connect to frontline doctors in Yuxi, Yunnan from his clinic in Beijing, 2,500 kilometers away. Medical specialists based in China's larger cities were able to connect with dozens of remote hospitals through China Mobile's Cloud video streaming platform, providing 'face-to-face' high-definition guidance to clinical staff and timely support for suspected coronavirus cases without travelling long distances.

These consultations were further enhanced by using wearable devices connected to a 5G wireless network, which allowed medical staff to monitor the vital physiological indicators of patients in temporary field hospitals.

*Medical specialists based in China's larger cities were able to connect with dozens of remote hospitals through China Mobile's Cloud video streaming platform, providing 'face-to-face' high-definition guidance to clinical staff and timely support for suspected coronavirus cases without travelling long distances.*

China Mobile's 5G Remote Consultation Cart was the first of its kind in the country. The portable 5G telemedicine system brought video connections to the ward to allow on-site staff and remote experts to collaborate for multi-party, multi-

disciplinary joint consultations and provide faster and more efficient diagnoses.

## 5G robots work tirelessly with human colleagues

China Mobile and CloudMinds jointly donated two 5G Cloud-based Intelligent Robots to hospitals in China. Powered by China Mobile's fast, flexible, and secure 5G networks, the robots support isolation protocols and help reduce the risk of cross-infection by aiding medical personnel during consultations and by working autonomously to provide cleaning and delivery services.

> *China Mobile International (CMI), as a subsidiary of China Mobile, has extended its pandemic-related solutions to other markets in the Asia-Pacific region. Its thermal graphic body temperature monitoring equipment has been adopted in numerous locations by government facilities and retailers across Australia, Singapore and Thailand.*

Furthermore, the reception desk is often the busiest and most crowded area in hospitals. 5G Cloud-based Intelligent Robots can relieve the workload of reception staff by providing coronavirus prevention knowledge to patients. The robots work alongside their human colleagues to provide temperature measurement, drug delivery, and other smart medical care services, as well as disinfection, cleaning, and medical waste disposal.

## Infection control guardians

Installing a 5G infrared body temperature measurement device is like having a tireless robot guardian who never misses a patient or temperature spike, yet never needs a break.

To help communities reduce infection risk, China Mobile developed a 5G rapid thermal imaging temperature screening system that can batch screen temperatures remotely. Highly accurate and able to record video for documentation and revisit past temperature records, it plays an important role in enforcing temporary control of entrances and exits at transportation hubs, supermarkets, schools, government buildings, and business districts.

China Mobile International (CMI), as a subsidiary of China Mobile, has extended its pandemic-related solutions to other markets in the Asia-Pacific region. Its thermal graphic body temperature monitoring equipment has been adopted in numerous locations by government facilities and retailers across Australia, Singapore and Thailand. CMI offers customers support for our solutions from shipment through deployment.

## "5G + Emergency First Aid" speeds up emergency care

Since late 2020, China Mobile's "5G + Emergency First Aid" System has been helping provide potentially life-saving care to people on the way to hospital with chest pain, stroke, and other traumas.

Leveraging China Mobile's large 5G bandwidth, low latency, and robust network, China Mobile's "5G + Emergency First Aid" System uses an integrated information platform and intelligent equipment installed in ambulances to provide life-saving procedures for critical condition patients in transit.

When a 5G-enabled ambulance arrives at the scene, the onboard team collect the patient's history and measure their vital signs. Data will be transmitted to the hospital in real time via a 5G network to help ensure more accurate diagnosis and log patient information into the hospital emergency system before their arrival.

The "5G + Emergency First Aid" ambulance also supports multi-channel high-definition live video so that medical staff at the emergency command and dispatch center can video call the ambulance. If needed, the hospital doctors can conduct a video consultation and instruct ambulance staff on emergency treatment while the patient travels to hospital.

## 5G becomes essential infrastructure in our daily lives

Within just a short time, 5G has become an invisible helping hand that has made immense contributions to healthcare. By improving communications and enabling remote healthcare consultations, 5G is helping to improve patient outcomes and to protect and support healthcare workers. Already embraced as a reliable part of healthcare infrastructure, 5G will also play an important role in future disaster relief efforts by introducing video communication to allow emergency operations centers to provide remote guidance to those on the frontlines of the disaster.

> *Within just a short time, 5G has become an invisible helping hand that has made immense contributions to healthcare. By improving communications and enabling remote healthcare consultations, 5G is helping to improve patient outcomes and to protect and support healthcare workers.*

China Mobile is responding to this need by fast-forwarding the construction and development of 5G networks and data centers. Our journey with 5G has just begun, but the technology has already clearly demonstrated its potential to improve many aspects of everyday life.

You grow your business, while
**Omantel ICT** handles your IT challenges.

Omantel's dedicated ICT Enterprise Unit offers customized solutions from cloud and IT operations to IoT, helping businesses run more efficiently, more competitively and more securely.

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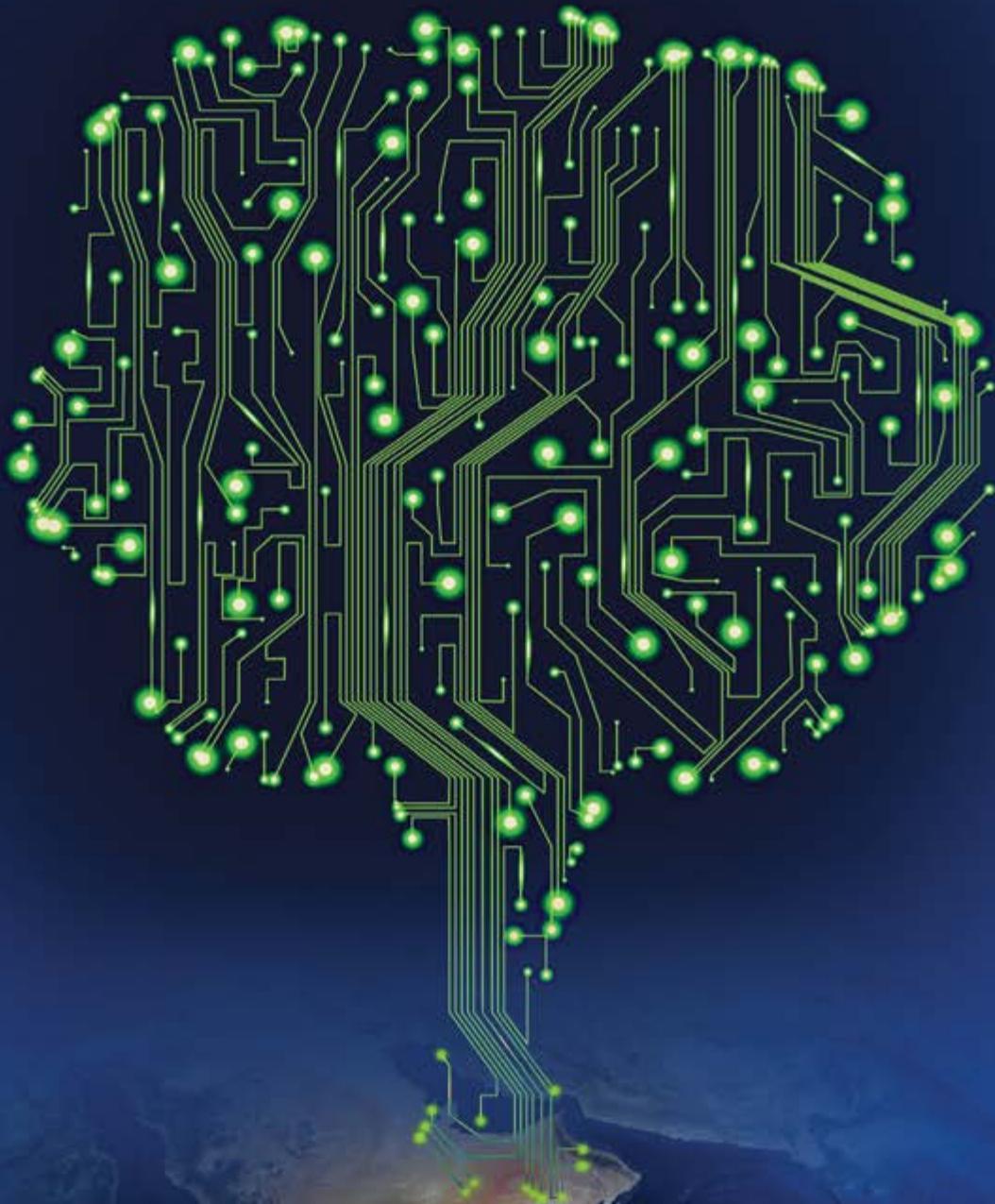
# REGIONAL NEWS

## Arab States Put WRC-19 Outcomes into Practice



Countries across the Arab region, like those worldwide, need to enhance their knowledge of the Radio Regulations, the treaty maintained by the International Telecommunication Union (ITU) on radiocommunication services and the use of radio frequencies. All governments need thorough, up-to-date information to fully exercise their rights and obligations on the use of radio frequency spectrum and associated satellite orbits, said experts at a regional ITU seminar late last month. At the ITU Regional Radiocommunication Seminar 2022 for the Arab States (RRS-22 Arab States), held virtually from 13 to 24 March, radiocommunication experts noted the need to keep pace with the rapidly evolving digital world. This also means keeping up with revisions to the Radio Regulations to ensure each country's radiocommunication services continue to function smoothly. The two-week seminar, held in collaboration with the Arab Spectrum Management Group (ASMG), examined the region's future radio-frequency spectrum requirements in light of the Radio Regulations updates at the last World Radiocommunication Conference, WRC-19. "Active, informed implementation of the latest Radio Regulations will enable people and communities, governments and companies across the Arab region

to take full advantage of the social and economic opportunities unleashed by digital technologies," said ITU Secretary-General Houlin Zhao. "ITU continues to facilitate the international framework that promotes equitable access to the radio frequency spectrum for terrestrial and space-based services, the regulation of which underpins many of the ways people communicate, work, travel, do business and receive public services, including education and health."

### Regulatory updates for the good of all

The regional seminar, convened entirely online, covered the regulatory framework for both terrestrial and space services and the procedures for filing and recording frequency assignments in the Master International Frequency Register (MIFR). Khalid Al Awadhi from ASMG welcomed the discussions as "an opportunity for regulators to widen and deepen their knowledge and insight in the field of spectrum management." He urged Arab States to familiarize themselves with the tools and publications made available by ITU's Radiocommunication Bureau so that people in the region can benefit from radiocommunication services that are free from harmful interference. Participants discussed the current regulatory framework for international frequency management, ITU Radiocommunication (ITU-R) Recommendations, and the best practices for spectrum use by numerous radio services. "The regular cycle of the Regional Radiocommunication Seminars equips our members with the tools, skills and knowledge to ensure fair and transparent application of the Radio Regulations," said Mario Maniewicz, Director of the ITU Radiocommunication Bureau. "This is vital to facilitate the efficient and effective operation of all radiocommunication services in a rapidly evolving digital world."

### ITU support and guidance

RRS-22 for Arab States included training to prepare for technical examinations, as

well as to gain familiarity with ITU tools to produce frequency notices. Tutorials enabled participants to familiarize themselves with ITU notification procedures, as well as with key software tools and electronic publications available to ITU Member State Administrations and ITU-R Members. During the concluding 'Radiocommunication trends and challenges for the Arab States' forum, seminar participants shared insights on modern spectrum management and monitoring in the region. Panel sessions spanned the latest trends in broadcasting, the International Mobile Telecommunications (IMT-2020) standards, 5G licensing models and other topics, such as maritime and space services and non-geostationary orbit (non-GSO) satellite constellations. A roundtable discussion explored the preparatory process for WRC-23 and items on the agenda of particular interest to the Arab States region. The seminar drew more than 170 participants from 30 countries, including 21 Arab States, representatives of the telecommunication industry, operators, associations, and academia from the Arab States region, along with experts from regional and international organizations.

### Build-up to WRC-23

Regional Radiocommunication Seminars aim to assist ITU Member States in spectrum management activities and the application of the ITU Radio Regulations, with special attention to developing countries. This regional engagement complements the larger, biennial, World Radiocommunication Seminars, so that all ITU countries and regions can adequately implement the results of the last and prepare for the next World Radiocommunication Conference. The next World Radiocommunication Conference (WRC-23) will take place in the United Arab Emirates from 20 November to 15 December 2023.

# World-First Trial of 5G HAPS Technology Takes Place in Saudi Arabia in the Red Sea Project



UK company Stratospheric Platforms Limited (SPL), a partner of German telecommunications company Deutsche Telekom (DT) has successfully trialed pioneering technology that provides 5G network coverage from the stratosphere. Conducted on February 5th at The Red Sea Project site on Saudi Arabia's western coast, the test was the world's first demonstration of the High-Altitude Platform System (HAPS) using aircraft to extend a 5G service, covering a geographical area of 450 km2. The trial was facilitated by Saudi Arabia's digital regulator, CITC. Speaking after the successful conclusion of the test, Dr. Mohammed Al Tamimi, Governor of CITC, highlighted the significance of the event: "This is a great accomplishment for Saudi Arabia's ICT sector. The deployment of HAPS in the Kingdom has been made possible by an enabling ICT ecosystem and strong government support. This successful demonstration puts us at the technological frontier globally and takes us closer to our Vision 2030 goal of extending high-quality ICT access to every part of the country." HAPS are radio stations located on an object flying or floating in the stratospheric layer. Stratospheric Platforms Limited used a German-made, long-endurance Grob aircraft for the Saudi trial. While HAPS remains an emerging technology, it can potentially bring connectivity to areas that are not covered, or are only partially covered, by cellular networks. Positioned at high altitude and providing a clear and evenly distributed signal, HAPS enables additional capabilities, including the Internet of Things (IOT), emergency communications, disaster recovery, temporary coverage for events and tourist hotspots, and terrestrial site backhaul. "The success of the trial in Saudi Arabia's western coast had many challenges" noted Richard Deakin, CEO of Stratospheric Platforms. "Now that the 5G HAPS technology has been proven, the question is one of further commercial development. This is why having a diverse consortium such as ours, which includes strong government support, is essential to the continued realization of the program." Technology advancements in Saudi Arabia are being driven by the country's Vision 2030, a whole-of-society program designed around economic diversification. Recent ICT initiatives include allocating more than 23 GHz of frequency spectrum for commercial and innovative uses, the launch of regulatory sandbox projects, open access for network operators, and the full-spectrum adoption of the WiFi-6e, becoming the first country in the EMEA region to do so.

# Saudi Arabia's ICT Spending to Reach US$32.9 Billion in 2022



Saudi Arabia's information and communications technology, or ICT, spending is expected to reach US$32.9 billion in 2022, a year-on-year growth of 2.3 percent, the International Data Corp. forecasted. The Saudi ICT sector expanded 8 percent between 2019 and 2021, to reach a value of $32.1 billion. This came during the 8th edition forum, hosted jointly by the Communications and Information Technology Commission and International Data Corp., to tackle the current ICT market and Saudi Arabia's digital transformation journey. The global market intelligence provider has also described the Saudi ICT sector as one of the most rapidly growing markets in the region. "The Kingdom's response to the pandemic was one of the strongest and most robust that any economy had to the pandemic," said IDC's associate vice president for Saudi Arabia and Bahrain." "IDC research shows that the Kingdom was way ahead of the curve in terms of its preparedness and response to the pandemic, and the pioneering Vision 2030 initiative has been a key facilitator of that success," Hamza Naqshbandi added. Since 2017, Saudi Arabia has added 37,000 telecommunication towers covering about 99 percent of the Kingdom's area, with the value of its ICT and postal markets exceeding SR140 billion ($37 billion) in 2021. In a global context, IDC forecasted that worldwide ICT spending will increase from $3.86 trillion in 2021 to $5.34 trillion in 2025. Founded in 1964, IDC is a wholly owned subsidiary of International Data Group, a tech media, data and marketing services company.

# IDC Announces Strategic Partnership with The CITC for ICT Indicators Forum

International Data Corporation (IDC) is delighted to announce its partnership with the Communications and Information Technology Commission (CITC) for the annual ICT Indicators Forum 2022 that will take place in King Abdullah Financial District, Riyadh on March 29. This strategic event will incorporate IDC's signature 'IDC Directions 2022 Saudi Arabia' industry forum within its agenda. The enthralling program will feature an impressive lineup of speakers, including the leadership of the Saudi ICT-enabling public sector entities as well as senior global and local management from IDC and representatives of prominent telecom operators and ICT vendors, to name just a few. The forum will combine presentations, panel discussions, and real-life use cases to give delegates a bird's eye view of the current market situation. It will shine a light on Saudi Arabia's journey towards becoming a digital economy by highlighting the impact of government initiatives on digital transformation enablement across various sectors of the Saudi economy. "As Saudi Arabia navigates the realities of the post-pandemic 'New Normal', the impetus on re-vamping and implementing digital strategies will be a key priority for Saudi organizations," says Hamza Naqshbandi, IDC's associate vice president for Saudi Arabia and Bahrain. "For the last seven years, IDC Directions has been a key forum where ICT leaders across the ecosystem converge to understand IDC's view and predictions on the state of ICT in Saudi Arabia." The ICT Indicators Forum 2022 will demystify Saudi Arabia's digital journey through detailed discussions on trends and major transformations in collaborative digital regulations and its role in stimulating the digital economy which is considered pivotal in building the future of the Kingdom of Saudi Arabia and the world. It will also deep dive into the latest emerging use cases and the future trends of the ICT sector that will support Saudi-based organizations unleash the power of emerging technologies in an exciting phase of the Kingdom's evolution.



# MENA IT Spending Set to Top US$180 Billion in 2024: Gartner

IT spending in the Mena region is projected to total $169.2 billion in 2022, an increase of 1.12% from 2021, and is expected to hit $180.7 billion in 2024 said global research and advisory firm Gartner in a new report. Globally, IT spending on track to reach $4.4 trillion in 2022, an increase of 4% from 2021, according to the report titled "IT Spend Forecast, 1Q22 Update". "This year is proving to be one of the nosiest years on record for CIOs," said John-David Lovelock, distinguished research vice president at Gartner. "Geopolitical disruption, inflation, currency fluctuations and supply chain challenges are among the many factors vying for their time and attention, yet contrary to what we saw at the start of 2020, CIOs are accelerating IT investments as they recognize the importance of flexibility and agility in responding to disruption. "As a result, purchasing and investing preference will be focused in areas including analytics, cloud computing, seamless customer experiences and security." Inflation impacts on IT hardware (e.g., mobile devices and PCs) from the past two years are finally dissipating and are starting to spill over into software and services. With the current dearth of IT talent prompting more competitive salaries, technology service providers are increasing their prices, which is helping to increased spending growth in these segments through 2022 and 2023. Software spending is expected to grow 9.8% to $674.9 billion in 2022 and IT services is forecast to grow 6.8% to reach $1.3 trillion. The rise of enterprise application software, infrastructure software and managed services in the near and long term demonstrates that the trend toward digital transformation is not a one- or two-year trend, rather it is systemic and long-term. For example, infrastructure as a service (IaaS) underpins every major consumer-focused online offering and mobile application, accounting for a significant portion of the almost 10% growth in software spending in 2022. Gartner expects digital business initiatives such as experiential end-consumer experience and optimization of supply chain to push spending on enterprise applications and infrastructure software into double-digit growth in 2023. The Russian invasion of Ukraine is not expected to have a direct impact on global IT spending. Price and wage inflation compounded with talent shortages and other delivery uncertainties are expected to be greater impingements on CIOs' plans in 2022 but will still not slow down technology investments. "CIOs anticipate having the financial and organizational ability to invest in key technologies throughout this year and next," said Lovelock. "Some IT spending was on hold in early 2022 due to the Omicron variant and subsequent waves but is expected to clear in the near-term. "CIOs who keep their eye focused on key market signals, such as the shift from analog to digital business and buying IT to building it, as well as negotiate with their vendor partners to assume ongoing risks, will fare better in the long-term. At this point, only the most fragile companies will be forced to pivot to a cost cutting approach in 2022 and beyond."

# Saudi Arabia Chairs International Telecom Meeting on Internet Services

Saudi Arabia recently chaired an influential global telecom working group examining issues related to internet services and technologies and their usage around the world. Since its formation in 2009, the Kingdom has presided over the International Telecommunication Union's council working group meeting on internet-related public policy issues. Held in Geneva, the meeting was headed by Governor of the Saudi National Cybersecurity Authority, Majed Al-Mazyad, and attended by ITU Secretary General, Houlin Zhao, his Deputy Malcolm Johnson, Union Sector Managers, and representatives of member states. During a review of a final report on internet and technology services, Al-Mazyad highlighted recommendations linked to enhancing online security, the use of new and emerging international technologies, and recent trends. The report also noted the achievements of a specialist team, headed by Saudi Arabia, in helping to strengthen joint cooperation between member states to raise the efficiency of internet use around the world. The team conducted 10 international consultations on more than 20 topics on internet-related public policy issues and discussed in excess of 400 working papers from government agencies, the private sector, civil society, and academia from more than 50 countries.

# CITC Launches Phase II of Saudi Domain Name Registrars Accreditation

The Communications and Information Technology Commission (CITC) of Saudi Arabia launches the second phase of the Registrar Accreditation for Saudi Domain Names, which aims to enable Saudi companies operating in the IT sector to invest in Saudi domain names and related services, which takes effect on Sunday, March 6, 2022. The Commission seeks to enhance the Saudi domain name services industry through accredited Registrars and allocated national companies specialized in Internet services and domain names, as well as increase the use of Saudi domain names. For those seeking to become accredited Registrars, CITC encourages those seeking the position to fill the information required on the website: www.nic.sa, as the application period is open and not limited in time. It is worth noting that the first phase resulted in the accreditation of several Registrars to provide Saudi domain name registration services, such as The Arabian Internet and Communications Services Co. (Solutions by STC), NourNet, Sahara Net, Raqmiyat LLC, and Hawsabah.



# Telenor Completes Myanmar Exit

Telenor finalized the sale of its unit in Myanmar to M1 Group for $105 million and indicated it would book additional losses related to the now divested business in its Q1 financial results. The operator group has already received $50 million for the business with the remainder to be paid over installments over the next five years. In its statement, Telenor indicated it would book a financial hit in its Q1 2022 results on the "reclassification of accumulated losses" on the division for items it had previously accounted for. It added although the initial sum from the sale would be added to its balance sheet in its upcoming results: "Due to the uncertain situation in Myanmar, the deferred payment will not be recognized in the accounts at closing." The company is due to report its Q1 results in May. Telenor announced the proposed sale in July 2021 at a time of an uncertain political situation in the country, though questions on the likelihood of its completion were raised several times in media, as authorities reportedly wanted a local buyer to take charge of the business. The deal was eventually cleared earlier this month on the condition a Myanmar-based partner was lined up by Lebanon-based M1 Group post-closing.

# 3G/4G Users Reach 111 Million in Pakistan

The number of 3G and 4G service users in Pakistan has significantly increased and reached 111 million by end of February 2022. As per detail available on the official site of the PTA website, Pakistan has around 192 million mobile phone users. The number of broadband subscribers reached 114 million in February while the broadband penetration was recorded at 52.02 percent.

# SAP Aims to Improve Businesses Through Accelerating Digitalization

Leading digital solutions provider, SAP organized an exclusive Blue Ribbon Event "Meet the Acceleration of Change", engaging industry leaders from all across the country to discuss and analyze the best practices to drive change and enable growth through digitalization. The event was aimed at promoting and accelerating the progress of digital transformation in order to achieve the vision of a digital Pakistan. The event shed light on the latest and upcoming technologies in the digital arena and also discussed the key areas and technologies that SAP aims to work on in the upcoming years to accelerate digitalization in the country. The session also proved to be a great initiative for the clients to engage and share their experience with SAP amongst themselves. The panel "Innovate Together to Accelerate business Transformations" had a line-up of distinguished personalities from the industry, including Hafeez-ul-Hassan Shah, Head of IT Operations & ERP, ICI Pakistan, Yasir Siddique Sheikh, CFO, Descon and Kamil Saroop Khan, COO, Mitchell's food. The panelists briefed the audience about the journey to digital transformation of the operations and services in their respective organizations by employing smart and innovative enterprise solutions from SAP. Saquib Ahmad, Managing Director, SAP Pakistan, also

shared his thoughts on the occasion and said, "For SAP, digital transformation is a journey that will serve as a driver for change and prosperity for not only our clients and their organizations but also our economy and our country. We will continue on our journey towards transforming and modernizing the digital landscape of Pakistan and we hope to learn and grow with our clients."



# Transportation and Telecommunications Minister Meets DCO Secretary General

Transportation and Telecommunications Minister Kamal bin Ahmed Mohammed received a high-level delegation from the Digital Cooperation Organization (DCO), led by Secretary-General Deemah Al Yaha, currently on visit to Bahrain. During the meeting the two sides reviewed the organization's work and goals and Bahrain's role as member. The Minister stressed Bahrain's strides in making use of information and communication technologies in order to enhance the efficiency and mechanisms of government work. "We look forward to building our relationship with the organization and taking advantage of more opportunities that will increase our contribution to digital cooperation in order to



develop our common digital economy", he said. The Minister of Transportation and Telecommunications Kamal bin Ahmed Mohammed met with a high-level delegation from the Digital Cooperation Organization (DCO) headed by Ms. Deema Al Yahya, Secretary General of the Organization, as part of an official visit to the Kingdom of Bahrain from 27 to 29 March 2022. The meeting was attended by Omar Al-Nimr, Director of International Government Relations, Saud Al-Gharimel, Director of Digital Ecosystems Relations, and Engineer Maryam Ahmed Jumaan, Chairman of the Telecommunications Regulatory Authority. During the meeting, the organization's objectives and initiatives were discussed as well as Bahrain's role as one of the founding members of the organization. "The Kingdom of Bahrain is one of the founding members of the Digital Cooperation Organization, and we have had a great experience at the national level in utilizing ICT technologies in order to enhance the efficiency of government processes and services. We look forward to further building our relationship with the Digital Cooperation Organization and benefiting from more opportunities that will increase our contribution to the economy.", said the minister. It is worth noting that the Digital Cooperation Organization (DCO) was established in 2020 as the first international organization that focuses on the digital economy which aims to enable members to empower women, youth, and entrepreneurs to accelerate growth across the digital economy and achieve greater prosperity via innovation. The current member states include the Kingdom of Bahrain, Jordan, Kuwait, Nigeria, Oman, Pakistan, Rwanda and Saudi Arabia.

# Turks and Caicos Completes Telecommunications Emergency Preparedness and Response Policy

The Turks and Caicos Islands' Telecommunications Commission (TCTC) has developed a Telecommunications Emergency Preparedness and Response Policy (TEPRP) supported by industry specialist Cenerva. The Category 5 hurricanes Irma and Maria in 2017 resulted in substantial damage to Turks and Caicos' telecommunications infrastructure. Significant network and infrastructure damage resulted in the loss of connectivity between the Islands and outage to the mobile network, with restoration taking up to ten days. Loss of communications during the disaster impacted the rescue and recovery efforts, leaving the government unable to communicate with citizens and lacking coordination of emergency services. The TEPRP lays out new obligations on telecoms network operators, designed to facilitate a coordinated response in emergency situations and support the continuity of communications. The policy identifies obligations that apply across the four phases of disasters defined by the International Telecommunication Union (ITU): mitigation, preparedness, response and recovery. The TCTC and Cenerva worked with key stakeholders to create the new policy to ensure telecoms operators have plans in place for disaster recovery, intended to keep networks operational. This includes requirements for backup facilities which can be deployed quickly and support for key government and emergency communications channels.

# Banglalink Acquires Additional Spectrum in 2300MHz Band

Banglalink has acquired 40MHz of spectrum in the 2300MHz band at an auction held by the Bangladesh Telecommunication Regulatory Commission (BTRC). Banglalink's CEO Erik Aas said: 'We congratulate the BTRC on successfully conducting the spectrum auction. It is an important step for the industry, as the availability of more spectrum will result in better internet speed and quality digital services for citizens of Bangladesh. In keeping with our objective – 4G for all, not 5G for a few, we intend to utilize the new spectrum primarily for 4G in next two-three years.' Banglalink is aiming to build 3,000 mobile towers this year to boost its 4G coverage.



# Saudi Arabia, Egypt Sign MoU on Digital Transformation



Egypt's National Telecom Regulatory Authority has signed a memorandum of understanding in the field of digital transformation with the Saudi Communications and Information Technology Commission. The memorandum serves to work on cooperation and exchange of experiences in the field of smart cities, frequency spectrum management and human capacity building. It also includes agreements to coordinate joint events, and to design training programs and workshops. According to an official Egyptian statement, the signing of the memorandum comes within the framework of strengthening cooperation between the two countries, and attracting investment in Egypt's telecommunications market. The memorandum was signed by Hossam El-Gamal, CEO of the National Telecom Regulatory Authority, and Muhammad Al-Tamimi, governor of the Saudi Communications and Information Technology Commission. It was signed in the presence of Ahmed Ihab Gamal El-Din, Egypt's permanent representative to the UN, and his Saudi counterpart Abdulaziz Al-Wasel. The signing took place on the sidelines of the World Conference on Telecommunication Measurements Standards in Geneva.
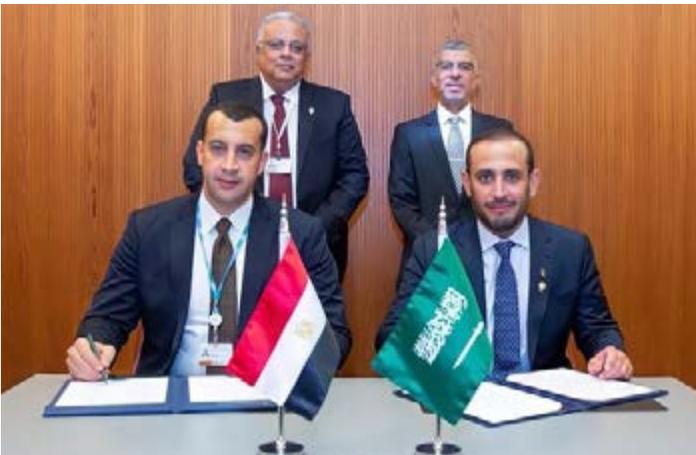
# UAE Conducts Virtual Cybersecurity Exercise with Over 140 Nations

The UAE cybersecurity Council, in collaboration with Expo 2020 Dubai and the International Telecommunications Union (ITU), conducted a virtual exercise, titled, "cyber 193." The one-day international cybersecurity exercise, hosted by the UAE via video conferencing and cloud computing methods, took place amidst current global events and associated challenges, which require greater international cooperation to create a cyber-united world capable of addressing emergencies and crises. The exercise, which was attended by more than 140 countries, represented a new international initiative led by the UAE, based on its belief in promoting peace, tolerance and human solidarity and reinforcing international cooperation. The exercise took place as part of Expo 2020 Dubai. Eman Al Awadhi, Deputy Director of cyber Security and Resilience at Expo 2020 Dubai, and Adel Mohamed Darwish, Director, Regional Office of the International Telecommunications Union (ITU) for the Arab States, attended the event. Dr. Mohammed Al Kuwaiti, President of the UAE cybersecurity Council, told WAM that the exercise will support the cyber defence operations of the UAE and all participating countries, to counter various cyber attacks, encourage global communication, and advance the capabilities of participating response teams. He said that the "cyber193" exercise comes within the framework of a series of cyber exercises implemented by the Council in cooperation with its strategic partners, and an embodiment of the national cyber security training in the areas of rapid response to electronic incidents, crisis management and the comprehensive vision of cyber security. He added that the international exercise, which



simulated more than 20 cyber scenarios, provided the participants with the opportunity to learn about the latest global industry trends and contribute to strengthening international partnerships in a way that enhances national capabilities to deal efficiently and professionally with various emergency scenarios. The exercise offered its participants the opportunity to learn about the latest relevant global trends, as well as strengthened international partnerships and boosted national capabilities to address various emergency scenarios and maintain the global stature of the UAE in the field of cybersecurity. Eman Al Awadhi, Deputy Director of cyber Security and Resilience at Expo 2020 Dubai, said that Expo 2020 Dubai is a smart city that extends over an area of 4.38 square kilometers and includes more than 13,000 advanced cameras and more than 8,000 contact points distributed throughout the site.

# Bahrain's National Cyber Security Centre Signs Up for Beyon Connect's One-Box and OneID



Bahrain's National Cyber Security Centre (NCSC) has signed an MoU to adopt Beyon Connect digital identity and postbox products and services. The NCSC aims to develop a strong cyber security framework as part of the country's 2030 vision and economic development. Beyon Connect will provide the recently launched OneBox to enable national secure communication between the public sector, private businesses and residents of Bahrain. Beyon Connect will also deliver its OneID platform for registering a unique digital identity and for interacting securely with public and private sector digital services across Bahrain. OneID will be made available as a mobile application for both iOS and Android. Bahraini residents can sign up via e-KYC supporting passport and national ID cards with facial recognition and liveness check. The owner of the digital identity wallet will receive a push notification in their OneID app when a new digital identity is issued for them. The owner stores the issued ID in the digital identity wallet, and it is ready for use. An organization can sign up and start receiving OneID digital identities to use within their e-services within 30 minutes. Beyon Connect, which launched in January, is a subsidiary of Batelco and specializes in providing new technologies with innovation potential, Software-as-a-Service platforms, and advanced IT services for the public and private sectors in the MENA region.

# Kuwait College of Science and Technology and Huawei Open First 5G Lab in the Country

The Kuwait College of Science and Technology (KCST) will host the first Huawei 5G Lab and 5G Star simulation training system in Kuwait as part of the newly launched Huawei ICT Academy at KCST. The collaboration will boost ICT talent development across the country and facilitate new digital business models, supporting economic transformation in line with Kuwait's Vision 2035. The 5G Lab offers students insights into the latest developments in 5G. Participants will also benefit from links with industry and knowledge-sharing in real-world ICT scenarios. The 5G Star platform, on the other hand, delivers an industry-standard simulation training program based on Huawei 5G base stations. Students will learn in an immersive environment, using virtual reality (VR) to facilitate complex technology learning in a classroom setting. The Huawei ICT Academy is a global school-enterprise partnership program led by Huawei to empower college and university students worldwide to pursue careers in the ICT realm. Combined with career certifications, the ICT Academy provides resources and skills for local talent to contribute to the ICT industry's advancement and the broader digital society. The launch ceremony was held at the KCST campus in Kuwait City in the presence of Dr. Khaled Al Begain, President of KCST; Dr. Abolfazl Niya, Head of Department and Associate Professor at KCST; Shunli Wang, Vice President of Huawei Middle East; Rico Lin, CEO of Huawei Kuwait, and other senior officials from both entities. Dr. Khaled Al Begain, President of Kuwait College of Science and Technology, said: "As educators, we must strive to produce all-rounded graduates, immersed in both theoretical and practical capabilities to thrive in a highly dynamic labour market. Therefore, KCST has prioritized deepening links with the industry in recent years. The partnership with Huawei exposes students to some of the most innovative technologies in 5G, in preparation for their absorption into the digital economy." Shunli Wang, Vice President of Huawei Middle East, noted: "Huawei is committed to partnerships that nurture a highly-skilled and experienced workforce, and that can help Kuwait realize the goals of its Vision 2035. By leveraging collaborations between the public and private sectors, we can foster the future digital leaders of the 'New Kuwait'. We will continue to engage with KCST at the 5G Lab, 5G Star, and Huawei ICT Academy to guarantee a rich digital talent pipeline for Kuwait and the wider Middle East." Dr. Abolfazl Niya, HOD and Associate Professor at Kuwait College of Science and Technology, added: "We are excited to host the first 5G Lab and the ICT Academy in Kuwait. KCST is renowned in the region for producing highly talented individuals in ICT. This partnership with Huawei puts us in a stronger position to produce the next generation of digital talent to drive Kuwait's digital economy." The Academy's trainings will be delivered through master classes, seminars, industry trips, and ICT competitions. Students will receive special discounts for Huawei certification exams and are issued certifications upon graduation. The industry-standard ICT training and certification will ultimately boost career opportunities for the students, while Huawei has pledged to support graduates with work placement. The KCST partnership is the latest initiative by Huawei to develop Kuwait's talent ecosystem. Huawei's flagship CSR programs such as Seeds for the Future and Middle East ICT Competition have already introduced young Kuwaitis to cutting-edge technology such as 5G, cloud computing, AI, and IoT in recent years.



# IT Exports in Pakistan Increased by 29.92% in 8 Months

The Information Technology exports have surged at the growth rate of 29.92 percent in the first eight months of the current financial year. "ICT export remittances, including Telecommunication, Computer and Information Services for the period July 2021 to Feb 2022 have surged to the US $ 1.689 billion at a growth rate of 29.92 pc in comparison to the US $ 1.3 billion during the same period in FY 2020-21," said an official of the ministry of IT and Telecom. He said, in February 2022, the ICT export remittances were US $ 201 million at a growth rate of 12.29 pc when compared to US $ 179 million reported for the month of February 2021.

# Saudi Arabia Announces Its Candidacy for ITU Council Membership

The Communications and Information Technology Commission (CITC) Governor Dr. Mohammed Bin Saud Al-Tamimi announced the Kingdom's candidacy for membership of the ITU Council at the ITU Council 2022 session in Geneva. During his speech at the Council, Al-Tamimi recalled how the Kingdom has worked alongside the ITU on many successful programs to strengthen digital infrastructure in developing countries. "As Saudi Arabia, we are committed to the ITU's continued success in connecting people and ensuring a sustainable digital future for all and support the ICT sector globally," he added. In addition, Al-Tamimi noted that Saudi Arabia is undergoing a remarkable period of profound digital transformation. The Kingdom's telecommunications and information technology market size reached $40 billion, which makes it the biggest market in MENA region, with over $19 billion worth of government-led investments in the last five years. This resulted in many achievements that paved the way for adopting several digital technologies. Saudi Arabia deployed the world-first successful trial to provide 5G connectivity through high-altitude platform systems (5G HAPS), and the launch of WiFi-6e technology which will improve Internet speeds by 5-fold for WiFi users. Saudi Arabia is a member of ITU Council for over 57 years, through which it had made major contributions in the ICT sector alongside the ITU members, making a significant impact on the

global economy. The ITU Council consists of 48 countries, elected among the agency's 193 member states. As the Union's governing body, central to the Council's mandate is ensuring the activation of timely policies, strategies, and programs to guide the global ICT sector through today's rapid transformations. In addition, the Council oversees the day-to-day running of the Union, approving budgets and coordinating work programs. Saudi Arabia has been a committed member of the ITU since 1949, with an active role as Council member since 1965. The Kingdom harnessed its human capabilities to support the ITU mission and activities in managing the frequency spectrum, allocating satellite orbits, and preparing worldwide technical standards related to future networks, network security and operational aspects, as well as the quality of service.

# Qatar's Internet Services Among Top-Ranked Globally

Transportation and Telecommunications Minister Kamal bin Ahmed Mohammed received a high-level delegation from the Digital Cooperation Organization (DCO), led by Secretary-General Deemah Al Yaha, currently on visit to Bahrain. During the meeting the two sides reviewed the organization's work and goals and Bahrain's role as member. The Minister stressed Bahrain's strides in making use of information and communication technologies in order to enhance the efficiency and mechanisms of government work. "We look forward to building our relationship with the organization and taking advantage of more opportunities that will increase our contribution to digital cooperation in order to develop our common digital economy", he said. The Minister of Transportation and Telecommunications Kamal bin Ahmed Mohammed met with a high-level delegation from the Digital Cooperation Organization (DCO) headed by Ms. Deema Al Yahya, Secretary General of the Organization, as part of an official visit to the Kingdom of Bahrain from 27 to 29 March 2022. The meeting was attended by Omar Al-Nimr, Director of International

Government Relations, Saud Al-Gharimel, Director of Digital Ecosystems Relations, and Engineer Maryam Ahmed Jumaan, Chairman of the Telecommunications Regulatory Authority. During the meeting, the organization's objectives and initiatives were discussed as well as Bahrain's role as one of the founding members of the organization. "The Kingdom of Bahrain is one of the founding members of the Digital Cooperation Organization, and we have had a great experience at the national level in utilizing ICT technologies in order to enhance the efficiency of government processes and services. We look forward to further building our relationship with

the Digital Cooperation Organization and benefiting from more opportunities that will increase our contribution to the economy.", said the minister. It is worth noting that the Digital Cooperation Organization (DCO) was established in 2020 as the first international organization that focuses on the digital economy which aims to enable members to empower women, youth, and entrepreneurs to accelerate growth across the digital economy and achieve greater prosperity via innovation. The current member states include the Kingdom of Bahrain, Jordan, Kuwait, Nigeria, Oman, Pakistan, Rwanda and Saudi Arabia.



| TOTAL INTERNET USERS | INTERNET USERS AS A PERCENTAGE OF TOTAL POPULATION | YEAR-ON-YEAR CHANGE IN THE NUMBER OF INTERNET USERS | MOBILE INTERNET PROXY: SHARE OF SOCIAL MEDIA USERS ACCESSING VIA MOBILE DEVICES |
|---|---|---|---|
| 2.93 MILLION | 99.0% | +1.7% +49 THOUSAND | 99.3% |

# MoITT to Provide High-Speed Mobile Broadband Access to 2.7 Million People



With the future plan set in motion, the Ministry of IT & Telecom (MoITT) through Universal Service Fund (USF) will be providing high-speed mobile broadband access to approximately 2.7 million people in 4,109 unserved and underserved muazas in Balochistan, Punjab, Sindh and Khyber Pakhtunkhwa provinces, Syed Amin ul Haq, Federal Minister for IT & Telecom said recently. During the last three years, MoITT through USF has connected 25 million people living in over 12,000 mauzas across Pakistan, by contracting 65 projects worth approximately Rs44 billion in subsidy. To note, the USF was established by the MoITT to spread the benefits of the telecom revolution to all corners of Pakistan. The aim of USF is to promote the development of telecommunication services in un-served and under-served areas throughout the length and breadth of the country.

Tech
Mahindra

# 5G VALUE PROPOSITION

## TRANSFORMING EXPERIENCES

**SIMPLIFYING NETWORKS**

### CSP
- Digital OSS/BSS
- Cloud Native Continuous Network Integration
- AI Driven Network Operations

### ENTERPRISE
- Intelligent Industry Solutions
- Private 5G Network
- Public & Private Edge

### ECOSYSTEM
- E2E 5G Cloud Stack
- Product Engineering
- Device & Development

**END TO END MANAGED SERVICES - DESIGN. DEVELOP. OPERATE**

# 5G and the Future of Networks

On May 13th, 1897, Marconi sent the first-ever wireless communication over the open sea. The message itself held prominence as it gave a sneak peek into the adventures of a promising future. It said, **"Are you ready?"**

> *Going beyond 5G networks requires a sharp transition from the traditional service model along with continuous transformations including software-centric, high-capacity network supports and enrichment of tighter coordination across multi-mode technologies.*

With every generation, the philosophy remains the same, making us wonder whether we are ready for the next generation. However, with the onset of 5G and its array of disruptive and transformative technologies, we pushed the envelope towards developing ultra-speed networks, massive data consumption, an interactive internet of things (IoT), and industrial automation systems.

These ultra-speed networks, enhanced machine learning and communications, as well as massive data consumption, are pushing carriers to start thinking and positioning their networks beyond 5G. This sharp transition demands to know, **"Are we ready for 6G?"** – which should be a transformative fusion between the physical, digital, and biological world around us. The GCC countries such as Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE (United Arab Emirates) have become pioneer in 5G networks. The 2022 world cup will bring around 1.7 million visitors to Qatar, which will be the first 5G world cup with services such as 8K live broadcasts and augmented and virtual reality.[1]

The advanced features relevant to networks will shape our evolution beyond 5G, facilitating growth opportunities and new revenue streams. Industry is taking on a vision to shape & enable access, service domains and networking in the current world. Countless opportunities will stem from these extrasensory and novel features for service innovation and business efficiencies.

**Manish Mangal**
Global Business Head, 5G & Network Services
Tech Mahindra
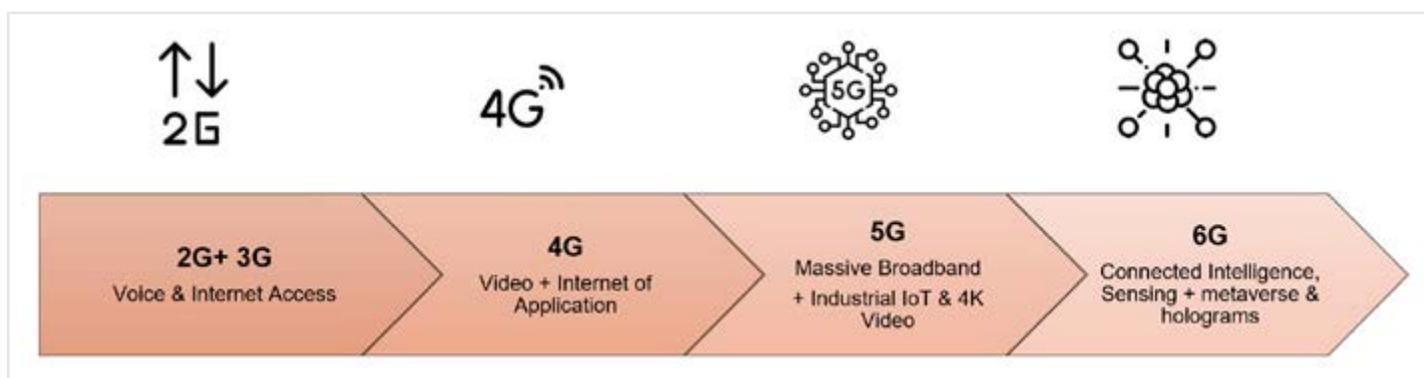
1. https://www.mei.edu/publications/gulf-has-5g-conundrum-and-open-ran-key-its-tech-sovereignty

Going beyond 5G networks requires a sharp transition from the traditional service model along with continuous transformations including software-centric, high-capacity network supports and enrichment of tighter coordination across multi-mode technologies.

**Vision Beyond 5G**

The current 5G connectivity market continues to be dominated by mobile network operators (MNOs). The business model of a communication service provider (CSP) is structured around mass provisioning with advanced investments in infrastructure and exclusive regulator-granted long-term spectrums and licenses. However, due to the advancement of 5G-powered services, there is a shift in the responsibility of delivering resources from an MNO-centric system to a dynamic mode of operation, which is becoming a necessary catalyst for deploying and operating networks of the future.

Tech Mahindra has observed these trends and therefore envisioned the overlay of the network of the future, which is a cloud-native, software-centric, fully automated, elastic, and multi-vendor ecosystem. As a result, we have further invested in software, automation tools, and frameworks for the future of networks. This unique framework of the '5G and beyond' infrastructure not only addresses the elastic nature of capacity requirements, but also automates multiple network functions in deployment life cycles while bringing down costs drastically.

Similarly, our 6G network architecture vision envisages the lowest evolution expenditure that fits the network economics for carriers in their efforts to increase average revenue per subscriber. Though the architecture

has been standardized as part of 3GPP (3rd Generation Partnership Project), we are also influencing our leading position towards the 6G future roadmap.

**Envisioning the 6G Architecture Blueprint**

We think 6G will evolve into multiple dimensions and will embrace the infrastructure, software, application, and security layers -

**1. Infrastructure Layer**

Every new mobile generation requires some new pioneering spectrum to make the best of the latest technology. An essential prerequisite for 6G is reframing the existing mobile communication spectrum from legacy technology to the new generation. The new pioneer spectrum blocks for 6G are expected to be at mid-bands 7 – 20 GHz (Gigahertz) for urban outdoor cells, which would enable higher capacity through extreme MIMO (Multiple input, multiple output), low bands for extreme coverage, and sub-THz (Terahertz) for peak data rates over 100 Gbps (Giga Bytes per second). In addition, new radio channels from satellite communications will be integrated with cellular bands to offer ultra-high access capacities in the radio and transport layers.

6G offers an advantage in terms of future sensing. It provides an enhanced level of coverage and the interconnection between nodes, which facilitates a multi-static sensory mesh. Furthermore, our AI-based optimization algorithms for beamforming in the radio layer can be scheduled at the cell site with efficient self-optimizing networks.

**2. Open Software and Automation Layer**

The software will become a cornerstone for enabling multiple access and transport

layers while elastically adding capacity. Along with that, network functions will be fully automated, cloud-driven, quickly scalable, and operational, while also being monitored on a single dashboard. Our rapid investments in AI/ML (Artificial Intelligence & Machine Learning) and our true potential are beginning to be utilized in 6G, along with an omnichannel coordination capability to provide a hyper-personalized experience at multiple touchpoints. This will help customize and strategize billing for industrial and consumer use cases, i.e., collaborated robots, human-centric experiences, sensory networking, gesture functionalities, etc.

*We are building AI-enabled offerings which will be relevant for 6G. Proactive and predictive customer experience management (CEM) models for business-to-business (B2B) and business-to-customer (B2C) will evolve, requiring a new set of network analytics tools, real-time service assurance techniques, and ultra-fast big data processing.*

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service assurance techniques, and ultra-fast big data processing.

### 3. Application Layer

It is difficult for us to capture the horizon of 6G offerings, but with the help of current 5G models, we can understand and reflect that AI/ML will play a significant role in future generations. Smartphones will play an essential role in the 6G era with new AI-enabled interfaces that would bring more convenience to consuming and controlling information. There will be a rise in gesture and voice controls adoption. VR/MR (Virtual Reality/ Mixed Reality) will become more immersive, opening new avenues for growth with human and digital transfusion. The boundaries of communication will not be limited to land and will penetrate the sea, sky, and space.

In addition, the metaverse would not just evolve into a final model but is likely to unify with the physical world. This is because the most notable aspect of 6G would be its ability to sense the environment, people, and objects. The network's sensing ability combined with AI and machine learning will make it more cognitive. Furthermore, it will support real-time interaction between collaborative robots, allowing massive knowledge sharing along with new and larger human-machine interfaces, precise localization, and deterministic communication.

### 4. Security Layer

With the inferences drawn from the current 5G models and the opportunities unlocked by 6G, we can create a hyper-connected network of heterogeneous nodes. These will have a major requirement for hyper security since the data can be acquired anytime, anywhere seamlessly, even from a small object that an individual interacts with. In addition, the threat of malicious attacks will increase with 6G due to the proliferation of billions of devices and millions of subnetworks.

The dynamic nature of threats makes it imperative to deploy sturdy security mechanisms. In this regard, 6G is expected to include new dimensions in network privacy, secure communications, and resilience. Robust authentication, encryption algorithms, and methods for monitoring network security can be deployed to avoid unauthorized access to sub-network functions. Distributed AI/ML can be used as security for distinct phases of cybersecurity protection and defense in 6G.

### Looking ahead: What 6G and the Future of Networks mean for us

6G technology promises to revolutionize many industries and is believed to be the foundation for realizing the full potential of the IoT. With that accomplished, we can expect these technologies to operate at a much larger scale and significantly impact the network architecture. With the lessons from the current 5G model and the opportunities unlocked by 6G, we can create a hyper-connected network of heterogeneous nodes with billions of devices and sub-networks. This is expected to include new dimensions of AI/ML technologies, robotics, sensory connectivity, and digital twins.

The next decade will witness significant developments in 6G technologies, architecture, and algorithms. Networks will benefit from remote monitoring and intelligent analytics, allowing operators to optimize operations and provide performance predictions that help businesses at every step of the way. Wireless communications in the 6G era will serve as an essential foundation for almost all industries in that economy.

The dependency of industries will grow to include their manufacturing floor, logistics supply chain, autonomous transportation, and precision agriculture. More dimensions will unfold as we progress towards the commercialization of 6G beyond 2030. As such, the time is ripe to work towards building the infrastructure and harnessing the current capabilities of 5G networks while keeping 6G on the horizon.

So, let's get ready for 6G.
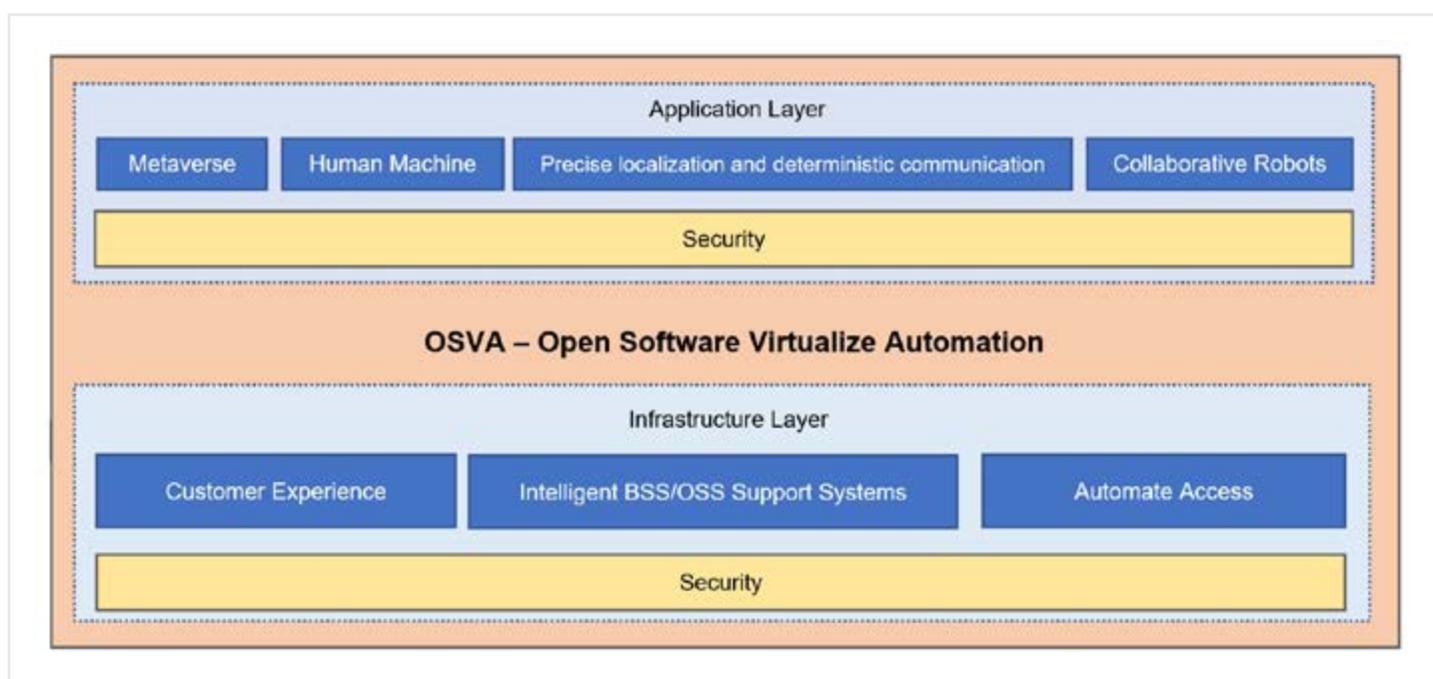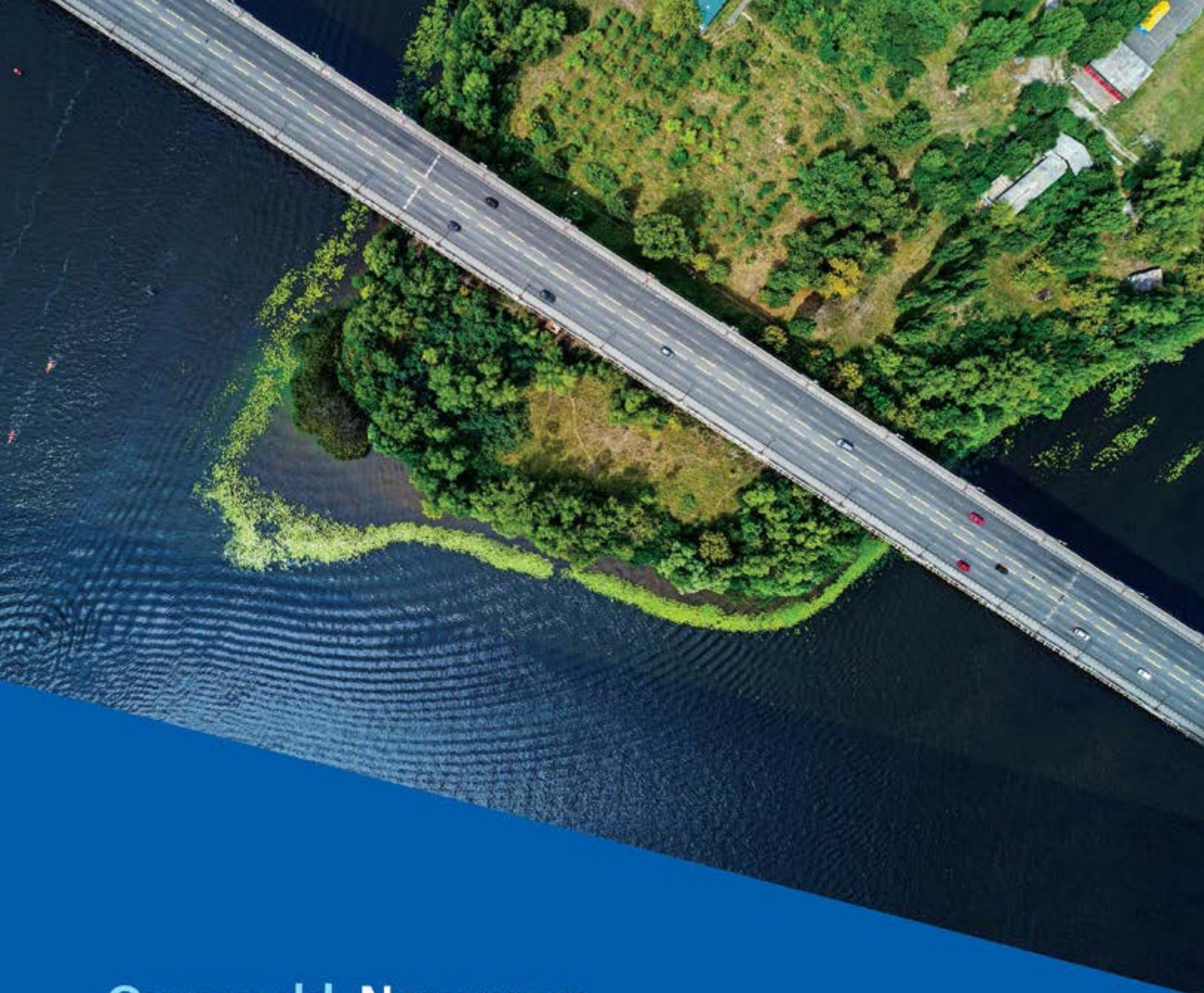
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## SATELLITE NEWS

## PSN Selects Hughes Jupiter Ground System for New Nusantara Lima Satellite

Indonesian telecommunications company PT Pasifik Satelit Nusantara (PSN) selected Hughes Network Systems' Jupiter ground platform for its Nusantara Lima satellite. Under the contract announced, a total of 11 Jupiter gateways will power 100 Gbps of capacity across Indonesia and nearby countries. This will be used to provide internet access to people living outside the reach of terrestrial broadband. PSN announced the Nusantara Lima satellite in March. Boeing Satellite Systems is building the satellite, which is planned for launch in 2023 on a SpaceX Falcon 9 rocket. It will augment the capacity of SATRIA-1 and have a capacity exceeding 160 Gbps. PSN also said that the satellite ground system includes gateways in Indonesian cities Banda Aceh, Bengkulu, Cikarang, Gresik, Banjarmasin, Tarakan, and Kupang. The Jupiter system very small aperture terminal (VSAT) platform is in use at more than half of all VSAT implementations worldwide, Hughes said. The



Jupiter system was previously selected for the Satellite of the Republic of Indonesia (SATRIA), which is currently under construction, and the Nusantara Satu satellite (formerly known as PSN VI), which is now in service. PSN also uses Jupiter equipment for Community Wi-Fi hotspots across Indonesia. "Hughes has been an essential technology partner to PSN for many years, helping us turn our ambitions for connectivity in Indonesia into reality," said Adi Rahman Adiwoso, PSN CEO. "We have put the Jupiter system to the test on several satellites, transforming satellite signals into efficient and cost-effective solutions that change people's lives, and we will do so again with the Nusantara Lima."

## French Firm Invests in Satellite Internet

A French company is planning to invest €25 million (about Sh64 billion) in high-speed satellite broadband in a space of 15 years from now. Konnect Broadband Tanzania Limited, a subsidiary of Global Eutelsat Group launched the internet service in the country yesterday. Tanzania is among countries in Sub-Saharan Africa that will benefit from the new satellite broadband with speeds of up 100 megabits per second, thanks to the move. "We are investing €250 million in 40 countries in Africa whereby 10 percent of the capacity of the satellite is in Tanzania," the company's general manager in Africa, Mr. Philippe Baudrier, said during the official launch. As a direct result of rolling out their service, which is meant to up the internet penetration in the country, he said, some 100 jobs are expected to be created though partner sales, service

and installation. As of January, this year, Statistics from Tanzania Communications Regulatory Authority (TCRA) shows that the internet penetration reached 50 percent with 30 million people currently using the internet. "We are not here to compete, but compliment what others are doing. Based on our research there is a need for high-speed internet everywhere," said Mr Baudrier. He revealed that Konnect internet services are designed to bolster the development of various economic sectors such as farming, tourism, education and healthcare. According to him the company has since October 2021 been in the country setting systems before the official launch. Their services are already in the market. Speaking during the launch, Hotel Association of Tanzania chief executive officer Kennedy Edward said: "Tanzanian

tourism entrepreneurs need reliable internet to deliver a quality service, to develop skills and to unlock new markets." "Internet provider can help support the tourism sector by offering internet connection to both guests and employees at lodges, situated beyond the reach of traditional networks," he said. Federation of Miners Association of Tanzania (Femata) vice chairman Peter Kabepela said: "Connecting Tanzania remote mines to satellite internet will increase their productivity and contribute to securing their perimeter." The executive director for National Networks of Farmers Groups, Mr Stephen Ruvuga, said: "Connecting farms to satellite broadband will allow farmers to collect valuable data such as soil moisture as well as monitoring weather."

# Greek Satellites with Revolutionary Laser Technology Set for Space

A new generation of Greek satellites with revolutionary laser technology is in development according to Hellas Sat telecommunications CEO Christodoulos Protopapas. Speaking with radio station Praktoreio 104.9 FM, Protopapas said the design of the new generation of Hellas Sat telecommunications satellites has begun and the new versions will incorporate "revolutionary technologies, satisfying the much higher demands for data transmission speeds and security in communications." The design will include the use of laser optics, "something groundbreaking for the sector", and that the decision has already been made to launch either one large or two medium-sized new satellites into the orbital position occupied by Greece and Cyprus (39th eastern meridian in the geostationary satellite orbit). According to Protopapas,

Hellas Sat 5 and 6 will be "satellites with an innovative payload using optical telecommunications", adding that a first cooperation protocol with the German firm OHB System AG has been signed, laying the foundations for a very innovative system for space technology, that will use laser beams from geostationary orbit to provide high speed telecommunication links. There will also be an effort to use the Helmos Observatory in Greece to implement the new satellite technology solutions, in collaboration with the Greek government and the Hellas Sat installations in Cyprus, where special permits have already been received for the installation of new optical telecommunications hubs for satellite communication using this technology. The benefits will include a massive increase in speed, from 100Gbs at present to several thousand Gbs, as well as greater security.

"With two laser beams one could easily link two countries at high speed, something that will not be done with our familiar satellite 'dishes' but with optical means – telescopes. We are entering a new generation of telecommunications while – very importantly for national security – laser communication from a satellite at 36,000 kilometers cannot at that point be targeted by an enemy action nor disrupted by interference," he said. Protopapas also revealed that Hellas Sat, in collaboration with the Greek and Cyprus governments, was jointly submitting a proposal to the European Quantum Communication Infrastructure (EuroQCI) program, while one possible use of the new satellites will be to provide a rapid communication link to Gateway, the new space station in orbit around the Moon.

# TPG Launches Business Satellite Services for Regional Areas

TPG Telecom has launched its business-grade national broadband network (NBN) satellite internet across Tasmania, regional Australia and surrounding islands. Launched as part of a new suite of enterprise services, TPG will be targeting its Business



Satellite Internet services across sectors such as government, mining, energy, manufacturing, logistics and healthcare. "This is a huge lift in coverage for our enterprise customers and means no matter where you are on the land in Australia, we may be able to provide the speed and capacity your business needs to stay connected and productive," said TPG Telecom head of product enterprise, government and wholesale Tom Sykes. "Remote businesses with remote sites may now have the ability to access enterprise-grade connectivity which could unlock a new world of possibilities through the internet of things, more efficient safety and monitoring tools, automation, cloud services and critical business applications." TPG Telecom's Business Satellite Internet is available in four data packs offering allowances up to 1,000GB a month. Customers can also choose between three assurance service level options, as well as three bandwidth speed options. Additionally, the Business Satellite Internet can be deployed as an alternative connectivity option for customers searching for redundancy solutions to complement existing fixed connectivity. TPG Telecom's Business Satellite Internet is a fully managed connectivity service delivered via NBN's Sky Muster satellite. The satellite uses 84 spot beams to cover mainland Australia and Tasmania as well as five major islands including Christmas, Lord Howe, Norfolk, Cocos and Macquarie Islands. Recently, TPG Telecom bagged its first customer in Moreton Bay Regional Council to use its private cloud service in Brisbane, announcing the deal earlier this month.

# Kacific Brings Ka-band Enterprise Backup to Asia-Pacific

Next-generation broadband satellite operator, Kacific says it has introduced Asia-Pacific's first HTS (high throughout satellite) Ka-band enterprise backup service, which is described as a service that protects organizations against outages that, it says, happen all too frequently. It is also, says Kacific, the first enterprise backup service in the Asia-Pacific region designed to take advantage of the speed, efficiency and flexibility of Ka-band satellite connectivity. Kacific Enterprise Backup provides what is described as an affordable on-demand, hot-backup package that allows organizations, factories, and enterprise branches that rely heavily on real-time business operations to continue with normal activities if their primary internet access is compromised. The service includes installation of a satellite dish at each site, and a choice of low-cost per-month, per-site backup plans depending on the organization's size and needs. Working like an insurance premium, a minimal fee is paid

for the site to act as a backup. In the case of an outage, high-speed first-priority bandwidth can be instantly activated and a fixed fee will be charged. The advantages of Ka-band for enterprise backup, says Kacific, include the reuse of Ka-band spectrum over spot beams; this creates higher capacity than traditional, wide coverage area satellites. The solution also

offers download speeds up to 70Mbps and upload speeds of up to 20Mbps. In addition, using a diversity site for uplink, Kacific Ka-band infrastructure is able to achieve up to 99.93% availability. Enterprise Backup is now commercially available to ISPs, telecom operators, businesses and governments in countries Kacific serves throughout Asia and the Pacific.

# Hughes Wins Bid for 5G/Satellite Network Under DoD Experiment

Hughes Network Systems has scored an $18 million contract to create a satellite-enabled 5G wireless network at Whidbey Island Naval Station, Washington, as part of the Pentagon's high priority experimental effort to bring modern, high-speed connectivity to bases around the country, the telecommunications firm announced. "Over the course of this three-year project, we will demonstrate for the U.S. Department of Defense how 5G infrastructure from Hughes — including a packet processing core, radio access, edge cloud, security and network management — can power the resilient networking necessary to transform base operations," said Rajeev Gopal, Hughes vice president for advanced programs, in the company's announcement. "Today's walkie-talkies, paper-trails and telephone conversations will be replaced with a private, secure 5G network over which air station processes and systems will be automated and continuously optimized," he added. Hughes will serve as the prime contractor

developing the standalone 5G network to support operations, maintenance and flight traffic management at the naval air station. The new 5G network will utilize spectrum from DISH Wireless, and will leverage satellites in both Geosynchronous and Low Earth Orbits (GEO/LEO). In GEO, the network will tap the JUPITER high throughput satellites (built by Hughes' parent firm EchoStar), including the new, ultrahigh density JUPITER 3 that will extend domestic coverage from coast to coast and provide download speeds of over 100 Mbps, Gopal told Breaking Defense in an email. "For LEO, Hughes has already tested the OneWeb LEO in the challenging Arctic area," he added. Once the full constellation is on orbit, "OneWeb LEO and its inherent latency advantages for 5G networks would create a global service for maximum coverage over oceans and landmasses." OneWeb's launch schedule hit an unexpected challenge this month, with Russia refusing to let the systems launch as planned on a Soyuz rocket

unless the firm pledges that no country will use its internet satellites for military purposes. On March 4, Russia removed a Soyuz carrying OneWeb's next 36 satellites from the launchpad at Baikonur Cosmodrome in Kazakhstan, which is managed jointly by the Russian Aerospace Forces and Roscosmos, Russia's space agency. However, an alternative appears to have been found: OneWeb announced today that the company and SpaceX have entered into an agreement that will enable OneWeb to resume satellite launches. The first launch with SpaceX is anticipated in 2022, but the full extent of the launch agreement hasn't been disclosed. OneWeb currently has 428 satellites on orbit, or 66 percent of its planned constellation of 648 satellites. Cybersecurity is another key attribute that the Hughes 5G network will provide, Gopal explained in his email. "Security and management are key to fully benefiting from 5G capability for an enterprise or private implementation. For DoD applications, 5G needs high levels of

cybersecurity. Stand-alone 5G networks, like the Hughes network, are inherently more secure than older networks where 5G is added onto the existing network," he said. "Hughes is using a modern Zero Trust Architecture (ZTA) that provides fine grained authentication and encryption even within the network parameters. The Hughes architecture is also compatible with Commercial Solution for Classified (CSfC) that has been designed by NSA." The new 5G contract is an Other Transaction Agreement (OTA), issued through the Information Warfare Research Project (IWRP) consortium of industry and academia, and aimed at helping the Navy and Marine Corps develop and mature technologies related to information warfare. But the effort is actually part of the Defense Department's multifaceted 5G experimentation initiative, called the Next Generation Information Communications Technology program, that involves numerous service bases — in this particular case, Joint Base Pearl Harbor-Hickam.

# Lynk Announces Successful Deployment of Commercial-Ready Cell-Tower-in-Space

Lynk Global, Inc., the satellite-direct-to-phone telecoms company, announced the successful launch, deployment, and initial on-orbit check-out of Lynk Tower 1. The spacecraft is the company's sixth 'cell-tower-in-space' satellite and is now in position to become the commercial cell-tower-in-space. Lynk Tower 1 is the satellite covered by Lynk's application to the Federal Communications Commission (FCC) for a global commercial license to operate a satellite direct-to-standard-phone service. "With the launch of Lynk Tower 1, Lynk is positioned to begin commercial service later this year and provides the true satellite-direct-to-phone service to citizens across the globe," says Charles Miller, CEO and co-founder of Lynk. "For our flagship carrier partners, news means that we are only months away from helping them solve the world's '0G Problem' and enabling their subscribers to connect everywhere." The technology in Lynk Tower 1 is an upgrade of Lynk's fifth satellite, which connected to thousands of unique devices in the Fall of 2021, including smartphones, feature phones, and myriad cellular IoT devices such as cars, trucks, iPads, and John Deere tractors. Lynk Tower 1 was designed and constructed at Lynk's Falls Church, Virginia facilities. It incorporates significant improvements in power systems, reaction wheels, star trackers, Ka-band radios, and upgrades to Lynk's cell tower base station software stack. These improvements derive from Lynk's previous five test flights and are the result of the company's in-house 'rapid-do-learn-loop' satellite development process. "Most companies take years to design and test new spacecraft concepts. Lynk's spacecraft development process leverages a rapid-do-learn-loop strategy where we quickly iterate and fly new spacecraft technologies several times a year. We learned a ton from our fifth satellite in late 2021. Those lessons have already been implemented in our sixth satellite," states Tyghe Speidel, CTO and co-founder of Lynk. "Many told us this was impossible. It's not. This technology is now very real, with three more satellites launching in the next six months as we roll out initial commercial services." Today, only 10% of the world's surface is covered by terrestrial mobile connectivity. This



Lynk Tower 1 successfully launched on April 1, 2022 positioning Lynk, the world's leading satellite-direct-to-phone telecoms company, to deploy the world's first commercial cell-tower-in-space.
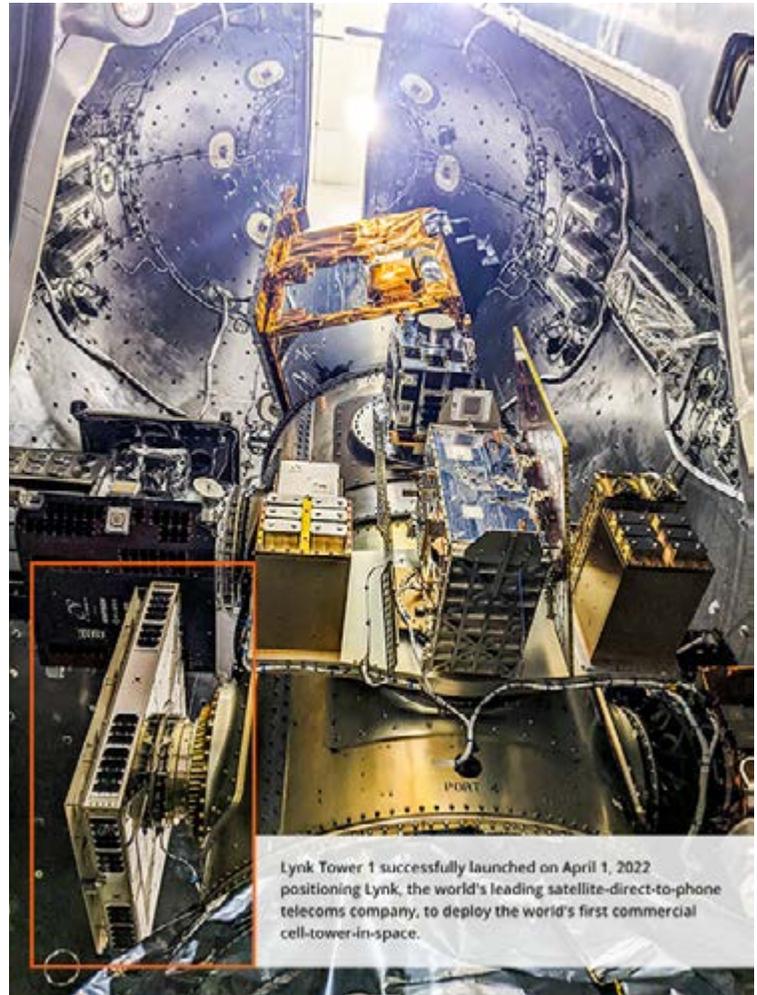
means that 90% of the planet is in "coverage black spots," otherwise known as "0G". Over three billion people per year with a mobile phone experience extended periods of disconnectivity. Another billion people per year refuse to buy their phone because they don't have mobile coverage where they live and work. 0G is a problem for four billion people. The launch of the commercial cell-tower-in-space enables Lynk to begin solving the world's "0G Problem." Lynk Towers 2, 3, and 4 are already under construction and will also be launched in 2022. Lynk Towers 1-4 will allow millions of mobile phone owners to connect to a satellite using a commercial service provided by their mobile network operator (MNO). Lynk has signed nine contracts with MNOs to date and plans to begin global commercial service in 2022 with a dozen flagship operators.

# OneWeb Seals Deals with SpaceX, Eutelsat, Speedcast, Telstra

OneWeb, the Low Earth Orbit (LEO) satellite communications operator part-owned by the UK government, has entered into an agreement with US-based SpaceX to enable it to resume satellite launches. OneWeb had cancelled an existing agreement with Russian space agency RosCosMos following Russia's invasion of Ukraine, and stopped launching satellites from Kazakhstan's Baikonur spaceport, leased to Russia. The first launch with SpaceX is anticipated in 2022 and will add to OneWeb's total in-orbit constellation that currently stands at 428 satellites, or two-thirds of its full planned fleet. OneWeb has so far activated its network for remote parts of the globe above 50 degrees north, with early partners already initiating services. OneWeb has meanwhile sealed a multi-year global Distribution Partnership Agreement (DPA) under which its second largest investor, French-backed geostationary (GEO) satellite operator Eutelsat Communications, will 'commercialize OneWeb services across key verticals including Maritime, Aviation, Enterprise, Telcos and Government.' Furthermore, US-based international satellite broadband provider Speedcast also announced the signing of a DPA with

OneWeb, as it plans to integrate OneWeb's LEO satellite connectivity into the Speedcast Unified Global Platform (UGP), bringing LEO services for Speedcast's energy and enterprise customers in mid-2022 followed by maritime mobility in 2023. LEO joins GEO, Medium Earth Orbit (MEO) and 4G/5G as connectivity options on the UGP. Speedcast has also recently been commissioned to develop critical ground infrastructure for OneWeb to support the fleet operator's Earth Station requirements in parts of Latin America. In yet another deal this week, it was announced that

Australian telecoms group Telstra will build three dedicated teleports across Australia to provide satellite gateway services for OneWeb in the Southern Hemisphere, under a ten-year agreement. London-based OneWeb's investors include: India's Bharti group (USD1 billion investment), Eutelsat (USD715 million, having upped its stake from 17.6% to 22.9% in October 2021), the UK government (USD500 million), Japan's SoftBank (USD350 million), South Korean electronics firm Hanwha (USD300 million) and US satellite services operator Hughes Network Systems (USD50 million).
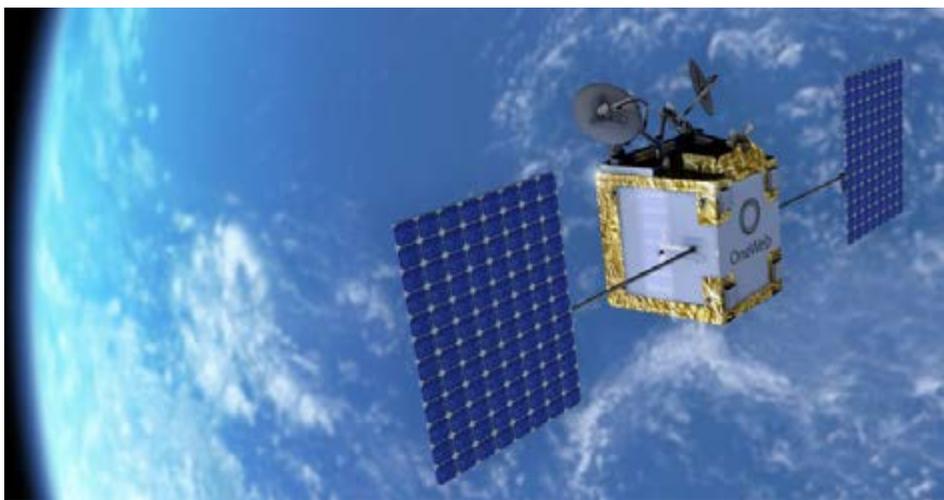


# NCC to Open Applications for Would-Be Providers of LEO Satellite Services in June 2022

Taiwan's National Communications Commission (NCC) has confirmed that it will begin accepting applications from companies which aim to offer low earth orbit (LEO) satellite services in June 2022. The Taipei Times reports that the plan to open applications comes after the regulator last week approved draft rules governing the appropriation and assignment of radio frequency bands for satellite communications. These rules are being consulted on for a 60-day period, with the NCC set to host information sessions in April or May, ahead of announcing its final regulatory framework. It is understood that the Executive Yuan, the executive branch of

the Taiwanese government, has released four additional frequency bands for use by geostationary and non-geostationary satellite communications service providers, namely: 10.7GHz-12.7GHz; 13.75GHz-14.5GHz; 17.7GHz-20.2GHz; and 27.5GHz-30.0GHz. Notably, the 27.9GHz to 29.5GHz band is used by Chunghwa Telecom, Far EasTone Telecommunications, Asia Pacific Telecom and Taiwan Mobile for 5G and it was reported that satellite service operators that plan to acquire bandwidth in that range will be required to reach agreements with those operators to avoid interference between the two communications systems. Meanwhile, to

be eligible to provide LEO satellite services applicants must be registered in Taiwan and Taiwanese-managed, according to the NCC, while direct shareholding by foreign parties must not exceed 49%, with indirect shareholding by foreigners limited to 60%. Foreign operators will, however, be permitted to form partnerships with Taiwanese companies to file applications, the NCC noted. Three overseas LEO satellite operators were reported to have already inquired about regulations in Taiwan with these named as SpaceX, OneWeb and Telesat.

# Philippines to Host Spacex's First Starlink in Southeast Asia

The Philippines announced its plan to host US private space company SpaceX's Starlink project, making it the first Southeast Asian country to avail of the technology for better telecommunications services. Trade Secretary Ramon Lopez said SpaceX's proposed project will provide Internet services in the Philippines using its Low Earth Orbit satellite network constellation called Starlink. Lopez said the launch of SpaceX's Starlink in the country will enable a much faster broadband speed, better connectivity, more capacity for telecommunications service, and more affordable rates for consumers, particularly in areas where connectivity has been difficult or impossible. He said preparations are underway for SpaceX's registration and the project is expected to be finalized before Philippine President Rodrigo Duterte steps down on June 30 after completing a six-year presidential term. Discussions on establishing the SpaceX project in the country started last November. Lopez said the recent signing of the amended Public Service Act, which allows up to 100 percent foreign ownership of public services in the country, was a critical factor in its decision to invest. SpaceX is currently establishing a local Filipino entity that will be its wholly-owned subsidiary and is targeting to deploy three gateways in the first phase.

# Inmarsat Selects Sandvine's Network Intelligence in Its OpenStack Private Telco Cloud

Inmarsat, the world leader in global, mobile satellite communications, has chosen Sandvine's Application and Network Intelligence in its OpenStack Private Telco Cloud. The three-year deal will support Inmarsat's work in building out its ORCHESTRA network – a first of its kind service for global mobility and government customers. ORCHESTRA is a dynamic mesh network combining ELERA (L-band) and Global Xpress (Ka-band) satellite networks, with terrestrial 5G as well as targeted low earth orbit (LEO) satellite capacity. Building on an existing seven-year relationship for network policy control between the two companies, the new contract spans Flexible Policy and Traffic Management, use cases for Satellite Networks, as well as Sandvine's ScoreCard, Insights exports, cloud-optimized Active Logic Hyperscale Data Plane, and Maestro Policy Engine. Bringing Sandvine's machine learning-based application classification and single-pane visualization into the cloud will enable Inmarsat to enhance traffic management capabilities and customer experience with greater scalability and lower costs. Our relationship with Inmarsat started with network policy control in 2015, and has since evolved towards new 5G network architecture for emerging 5G and satellite services. By migrating to our ActiveLogic Hyperscale Data Plane, Inmarsat can roll out new services that meet rapidly changing customer and market demands, and deploy use cases such as Network Optimization, Heavy User Management, Video Streaming Management, Wholesale and Peering Link Management, and Usage-Based Services.

# French Court Annuls Starlink License

France's highest administrative court revoked a decision by Arcep to grant frequencies to SpaceX's low Earth orbit (LEO) satellite broadband service Starlink, stating the French telecoms regulator had not carried out the correct proceedings. Arcep in February 2021 authorized Starlink to use two frequency bands to provide satellite-based broadband services in France. However, the Conseil d'Etat quashed the regulator's decision after it was challenged in court by two environmental groups. In its ruling published, the court noted Arcep failed to carry out a public hearing before granting the frequency licenses. Such a hearing would have been a legal requirement because the decision to grant the licenses to Starlink "could impact the market of access to high-bandwidth internet and affect the interests of end users", the court stated. Reuters reported Starlink is yet to comment on the ruling. Starlink had been authorized to use the frequencies 10.95GHz to 12.70GHz for space-to-Earth and 14GHz to 14.5GHz for Earth-to-space transmissions.

# Hispasat Gets In Higher Orbit With Agreement to Acquire AXESS Networks

Just weeks after Spanish satellite-based communications operator Hispasat entered a joint venture to offer a high-capacity portable broadband system in North America and took the full share capital of Hispamar Satélites in Brazil, it has accelerated its growth with an agreement to acquire teleport operator and satellite services provider AXESS Networks. Founded in 2019 from two well-established companies in Europe and Latin America, AXESS Networks provides turnkey solutions, operating teleports in Germany, Colombia, Mexico, Peru, Saudi Arabia and the United Arab Emirates. It currently has a team of more than 200, operating about 8,000 sites in more than 50 countries on four continents. It has a broad customer base in industrial and corporate sectors related to telecommunications, oil and energy, and mining, among others, with critical operations in remote areas where service resilience and quality are extremely important. For Hispasat, the acquisition of AXESS Networks is part of the actions defined in its 2020-25 Strategic Plan, which aims to transform the company into a satellite solutions and services provider in its target markets. This sees greater involvement of Hispasat in the managed services value chain in order to increase its proximity to customers and be able to adapt and quickly develop its products

in a sector that is experiencing a major technological boom. The acquisition implies a capital value of $96m for AXESS Networks and is designed not to affect the company's activities. After closing the deal, it will maintain its operations, management, work teams and relations with customers and suppliers, while the agreement aims to allow Hispasat to optimize its offering in areas such as the extension of cellular networks via satellite, connectivity networks for corporate clients and the digitization of remote areas in countries with large technological gaps. It will also enhance the development of technology for emerging markets, such as the internet of things or satellite 5G networks. The advantages of the merger will be especially notable in Latin America, a region where both companies maintain a significant portion of their business. "We are very pleased with the agreement reached with AXESS Networks, an action

that responds to the increasingly essential collaboration among industry players with the aim of meeting society's demands for connectivity," said Miguel Ángel Panduro, CEO at Hispasat. "In recent years, several operations of this type have occurred in the sector and our partnership with AXESS Networks will provide us with optimum strategic positioning in two areas that have huge potential for growth in satellite communications – Latin America and the B2B solutions market." Mauricio Segovia, CEO at AXESS Networks, added: "The merger of AXESS Networks with Hispasat represents a major leap for the company, since it demonstrates great support from one of the industry's most relevant players and it allows us to integrate and strengthen the joint value proposition towards our markets. With this operation, we begin to form part of a leader that creates trends in the market and whose projects have a clear social background."



# Starlink Hits 250,000 Subs Milestone

Starlink – the Low Earth Orbit (LEO) satellite broadband provider backed by Elon Musk's SpaceX venture – has revealed that it is now serving around 250,000 subscriptions 'across consumer, enterprise and many businesses. Speaking during a panel discussion at the Satellite 2022 conference in Washington, DC this week, Jonathan Hofeller, VP of Starlink commercial sales at



SpaceX, said that while Starlink is best known for its consumer broadband service, it is also working to provide connectivity for other sectors, including the aviation industry. SpaceNews quotes the executive as saying: 'Connectivity on airplanes is something we think is ripe for an overhaul. The expectation has changed faster than the technology has changed … We're designing a service where every single passenger on that plane can stream simultaneously.' The SpaceX seeks to become the world's first high speed, low-latency satellite ISP, coordinating the largest fleet of operating satellites to deliver a consistent broadband service to the most disconnected areas. In March 2018 SpaceX was granted authority by the Federal Communications Commission (FCC) to deploy and operate a non-geostationary orbit satellite system comprising 4,425 satellites operating in the Ku- and Ka-bands for the provision of a fixed-satellite service constellation.

# SES Speeds Up C-Band Clearing; Verizon to Gain Early Access to 5G Spectrum
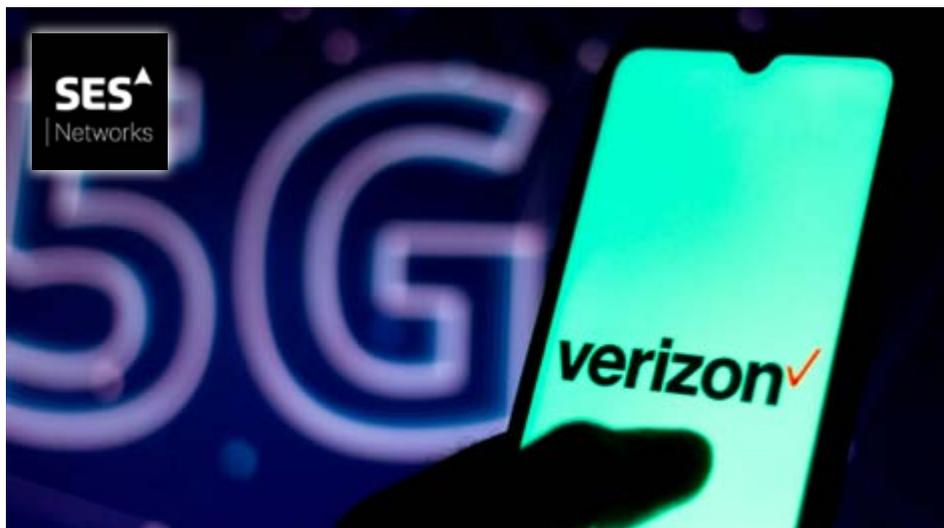


Satellite operator SES has signed an agreement with Verizon to expand the US telco's access to a portion of 5G-suitable 3700MHz-3800MHz C-band spectrum in important regions across the US earlier than the relocation deadlines previously set out by the Federal Communication Commission's (FCC). SES previously completed its Phase I accelerated C-band clearing – ahead the first FCC deadline of 5 December 2021 – earning almost USD1 billion in accelerated relocation payments. To meet the Phase II deadline (5 December 2023), SES is already working to relocate its existing services from the 3700MHz-4000MHz band and complete equipment changes for its Incumbent Earth Stations across the entire contiguous US, earning an additional USD3 billion in accelerated relocation payments in the process. In a separate press release, Verizon notes that the accelerated C-band clearing timetable will allow it to launch 5G in at least 30 additional 'major population centers this year, including the likes of Atlanta, Denver, Baltimore and Washington, DC.

# Orange Tests Satellite Technology to Boost Coverage in Africa

Orange is planning to use satellites to plug coverage gaps in one of its African markets, with a successful trial resulting potentially in a full rollout of the technology across its footprint. In a statement, US-based satellite company AST SpaceMobile revealed a non-binding memorandum of understanding with Orange, to examine the opportunity for the operator to test the company's technology in an unspecified African country. The test will use AST SpaceMobile's BlueWalker 3 satellite which beams directly to phones via 3G frequencies. It claimed the satellite is the first and only space-based cellular broadband network designed to be accessible directly by standard mobile phones. The satellite company said the test "paves the way" for a potential agreement to serve more Orange subscribers with the technology, orange has over 220 global subscribers. "AST SpaceMobile's satellite constellation could revolutionize how mobile subscribers connect. We look forward to working with AST SpaceMobile to explore expanding Orange's service offerings to geographic regions where it is difficult to build out cellular infrastructure," said Orange International Networks EVP Jean-Luc Vuillemin. "AST SpaceMobile seeks not only to fill cellular broadband coverage gaps for millions of existing subscribers, but also to extend mobile service to areas which currently have little to none at all," added AST SpaceMobile Chief commercial officer Chris Ivory. Other backers of AST SpaceMobile includes Rakuten Mobile, Vodafone and American Tower.

# Starlink Receives Romanian Authorization

Starlink, the Low Earth Orbit (LEO) satellite broadband provider backed by Elon Musk's SpaceX venture, has been authorized in Romania, Ziarul Financiar reports. The announcement was made on LinkedIN by Sabin Sarmas, Chairman of the IT&C Commission of the Chamber of Deputies. 'Starlink, Elon Musk's famous satellite internet service, has also been licensed in Romania. What does this mean for us Romanians? That we are one step closer to having internet access in any corner of the country, no matter how isolated it may be, because in addition to high-speed fiber-optic internet, we will also have satellite internet on a large scale,' Sarmas wrote in his LinkedIN post. According to the National Authority for Management and Regulation in Communications (ANCOM), Starlink was issued a license to provide internet access services on 2 March. Although the operator has yet to begin taking orders in Romania, customers are invited to pre-order the service by paying a deposit of USD99.

# Thuraya Launches Push-to-Talk Communications Solution

Thuraya Telecommunications Company, the mobile satellite services subsidiary of the UAE's flagship satellite solutions provider, Al Yah Satellite Communications Company PJSC ("Yahsat" or, together with its subsidiaries, "the Group") listed on the Abu Dhabi Securities Exchange ("ADX") under (SYMBOL: YAHSAT) (ISIN: AEA007501017) today announced that it has launched its new IP-based radio communications solution, Thuraya Push-to-Talk (PTT). Thuraya PTT has been developed with Cobham SATCOM, a market-leading provider of satellite communications solutions to the maritime and land markets. The solution will enable users across a wide spectrum of industries to extend the range of their voice communications beyond line of sight (BLOS) wherever their assets and teams are located. Thuraya PTT is an IP-based radio communications solution that works in conjunction with any Thuraya Broadband terminal to establish a private network. It gives users the ability to combine and integrate different technologies such as 3G/LTE/LMR (Land Mobile Radio) via Thuraya's advanced satellite system for seamless voice and data communications. The new solution has been designed so that it is simple to use and guarantees secure interoperability among multiple users with different communication systems on land and at sea. The solution manages communications from multiple devices and locations and provide real-time, uninterrupted switching between satellite, cellular and LAN, ensuring cost efficient and reliable connectivity. Thuraya PTT is designed for mission critical operations to support organizations in remote areas that often struggle with a lack of reliable connectivity - particularly when

there is an urgent need to communicate across different areas, countries or continents. Thuraya's PTT service enables organizations to overcome this challenge, enhancing overall workforce productivity and safety as a result. Sulaiman Al Ali, Chief Executive Officer at Thuraya, said: "We are proud to announce the launch of the Thuraya Push-to-Talk solution today. Satellite connectivity and push-to-talk technology will provide unparalleled support to a wide range of sectors—most of which are currently being served and supported by Thuraya—by boosting efficiency, safety and security for troops and staff operating on-the-ground. The market has clearly shown a demand for PTT services which enables users to communicate through a single solution. We anticipate that market potential for such a service will continue to grow." "Our partnership with Cobham SATCOM has been a key component of this successful launch. It has enabled us to broaden and enhance our portfolio offering by creating a platform for further innovation and development of features and applications

to increase our global market share. We're looking forward to more collaborations with Cobham SATCOM and reaching more milestones of this nature in the near future," he added. The global PTT (incl. hardware, solutions and services for all network types) market size is set to grow from USD 29.2 billion in 2021 to USD 45.2 billion by 2026, at CAGR of 9.1 % during this period, with the sectors of Public Safety, Government, Energy and Utilities occupying a significant proportion of growth. In addition, the global hybrid-satellite cellular terminal market is expected to reach around USD 700 million by 2031, with a CAGR of 22.81% during the forecast period 2021-2031. Thuraya PTT extends legacy push-to-talk capabilities to hybrid data networks such as terrestrial cellular networks where available, supplemented by the Thuraya satellite network where no terrestrial network coverage is present. With no user intervention required, the system automatically routes voice and data traffic via the least expensive and most reliable network available.



# Swedish Regulator Promotes Satellite Broadband to Boost Rural Coverage

The Swedish Post and Telecom Agency (Post & Telestyrelsen, PTS) says that satellite broadband will need to play an important role in helping the country meet its target of having a minimum 30Mbps connection available to every household by end-2025. The regulator says that while

satellite services are underused today, with just 150 subscriptions, operators should continue to raise customer awareness, particularly in rural areas which will not be covered by commercial fiber rollouts. TeleGeography's GlobalComms Database notes that under its 'Completely Connected

Sweden 2025' program the country aims to have 98% of households covered by 1Gbps services by end-2025, with a further 1.9% to have access to at least a 100Mbps connection and the remaining 0.1% to be reached by a minimum 30Mbps service.

# Rivada to Launch 600 LEO Satellites in 2024



Rivada Space Networks has disclosed plans to launch a constellation of 600 Low Earth Orbit (LEO) communications satellites in the coming years. Deployment will start in 2024 with full constellation deployment expected by mid-2028. The company seeks to provide secure, global, end-to-end enterprise-grade connectivity for the telecoms, enterprise, maritime, energy and government services markets. Rivada Space Networks has been established by US-based Rivada Networks and will be based in Germany.

# Lacuna's IoT Network to Offer LoRaWAN Direct-to-Satellite Connectivity

The idea is for satellite coverage to fill connectivity gaps in hard-to-reach areas that are without cellular or Wi-Fi signals. It is planned for the service to be available to customers and distribution partners in Q3 2022. Asset tracking, fleet management and data collection, globally, are seen as target applications. It will use LR-FHSS (Long Range-Frequency Hopping Spread Spectrum) technology, which has been designed for long-range and large-scale communication scenarios such as satellite IoT. The on-orbit operation has been validated by Lacuna through several years of their own sub-GHz ISM operations, and is now also being made available using Omnispace's licensed, 2GHz S-band spectrum rights. Basically, the idea is to integrate both companies' infrastructure to allow devices to connect between existing terrestrial networks and previously un-connected regions around the world. Lacuna Space is a UK and Dutch company – headquartered at Rutherford Appleton Laboratory Harwell Campus in Didcot, pictured right – that provides low-cost global connections, for short data messages to sensors and mobile equipment. The company describes it as an ultra-low cost tracking and detection service. Based in Washington D.C, with access to satellites and ground stations, Omnispace provides a 5G-based global cellular network via a non-geostationary orbit satellite constellation (MEO and LEO), and is eyeing the IoT market. "Omnispace is reimagining mobile communications solutions for users by employing standards-based solutions to deliver global, real-time connectivity," said Ram Viswanathan, president and CEO for Omnispace.



"We're pleased to be working with Lacuna to introduce this new enterprise-class service, which is part of our broader vision to deliver seamless terrestrial and satellite communications." According to Lacuna, its initial set of sensors are smaller than the palm of a hand and can connect over satellite for several years off a single battery charge. "We are happy to announce this agreement with Omnispace which accelerates getting our technology to market and enables us to start delivering our IoT services around the globe," said Rob Spurrett, CEO of Lacuna. "Our customers will be able to access Lacuna's IoT service directly from inexpensive, battery-powered LoRa devices to extend connectivity to even the most remote areas of the world." Earlier in the year, Lacuna Space and Semtech trialed extending the coverage of LoRaWAN by adding IoT-to-Satellite connectivity. Semtech – which is the owner of the underlying Long Range modulation technology – has their radio silicon in proprietary radio links. It has become the foundation technology on which LoRaWAN protocol has been built by the LoRa Alliance (with 500 member companies, of which Lacuna is one). "We have trials and demonstrations underway in many countries and regions that were previously thought to be inaccessible to IoT," said Lacuna Space CEI Rob Spurrett back in January." In competition with Omnispace, other companies looking to provide satellite-based 5G and broadband networks include Elon Musk's Starlink, Jeff Bezos' Project Kuiper, the Lausanne-based Astrocast and the UK government-owned OneWeb. For Lacuna, competition in the Satellite IoT area include Skylo, a satellite-based narrow-band IoT specialist that uses Inmarsat, as well as Hiber and Fleet Space Technologies.

**ARTICLE**

# Data Privacy Importance at stc

Data privacy is the concept that governs the activities of accessing, handling and storing the sensitive information or data. With different levels of data criticality, to organizations all the time will be the most sensitive are the personally identifiable information (PII) of any category (customer, employee, citizen…).

> *Protecting the privacy of stc customer's personal data is equal to securing our customers trust. There is no room for toleration, we are committed to it to the farthest extent.*

While data protection covers all the aspects Data privacy is a subcategory which cover the ethical and legal obligations to control the access to the PII information.

### Importance of data privacy
The phrase "data is the new oil" With the fact of Data is the crown jewels to any business and organization at

Nowadays digital era, makes the protection and privacy of these jewels is one of the most critical missions at the organization level, while Data is the business to some organizations, it is the source of competitive advantage and the core operations asset to others.

There are many drivers for why data privacy has significant importance to all organizations.

The main drivers are:
- Business continuity dependent on data security and privacy
- Business image and reputation
- Regulations and compliance requirements.
- Organization code of ethics
- A professional mature privacy policy gives the edge over competition.
- Mitigation of the data breaches involved Risks

### Why data privacy is critical to Telecom operators?
Telecom operators are one of the biggest collectors of sensitive information at the country level. With millions of customer's personally identifiable information (PII) and their financial information of payments and transactions, telecom companies are constantly targeted by cybercriminals.

**Issa Al Suwait**
Cyber Security General Manager
stc Kuwait

**stc**

But such attacks are not the only concern to telecom operators when it comes to data privacy. PII and customers financial information are also protected under multiple data protection laws and international standards. Starting from the local data privacy, protection and classification regulations published by CITRA in Kuwait as example, up to the EU General Data Protection Regulation (GDPR), in addition when it comes to financial information, the Payment Card Industry Data Security Standard (PCI DSS) enforce additional layer and requirements to implement and comply with.

For all these reasons, data privacy and protection should be a main concern to any telecom operators all the time.

> *stc as a leader in the Kuwait state telecom industry took the data privacy a step further by early adoption of a strict data privacy and protection framework, the framework developed with consideration of compliance with the local, regional and international data protection laws and international standards*

### Data privacy at stc
Stc as a leader in the Kuwait state telecom industry took the data privacy a step further by early adoption of a strict data privacy and protection framework, the framework developed with consideration of compliance with the local, regional and international data protection laws and international standards.

The framework developed as top-down model, detailing the core pillars for data privacy and protection from governance level down to the advanced technical level controls and all in between of process, policies and procedures.
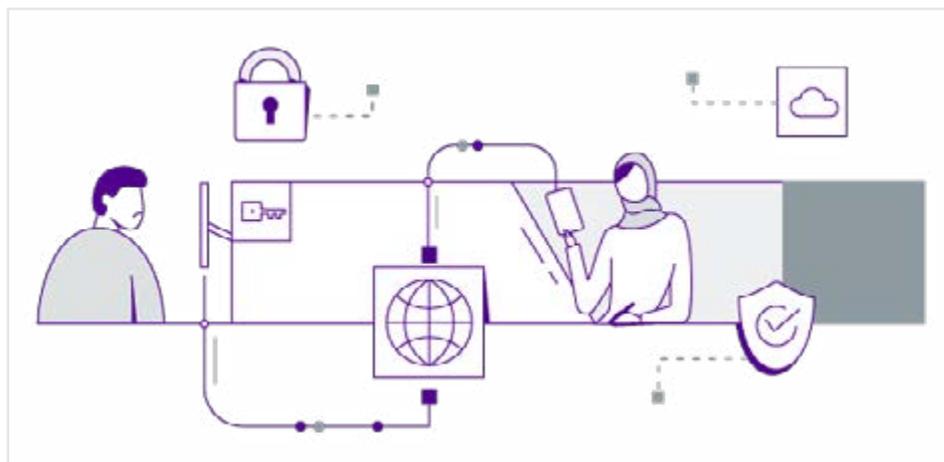
To ensure stc network security and data as the crown jewels asset of the network an agile cybersecurity strategy has been developed and adopted to address all the data Privacy threats looking beyond standard and traditional cyber security controls and safeguards to a more profound level such as adoption of Zero Trust architecture and a data-centric approach to cybersecurity.

### Limiting sensitive data transfer comes first
In cyber security domain it's well-known that the human factor is always the weakest link a cross the whole chain.

Whether they have been compromised by malicious outsiders or unintentionally a careless step away from a data leak, insider human threats are a very serious security concern. Telecom operators can limit the impact of such data breaches regardless intentionally or not by implementing Data Loss Prevention (DLP) solution with an integrated classification system.

A second layer of detecting, limiting sensitive data transfer and preventing data leakage can be added at the network data traffic level by implementing a Network Detection and Response solution,

> *To ensure stc network security and data as the crown jewels asset of the network an agile cybersecurity strategy has been developed and adopted to address all the data Privacy threats looking beyond standard and traditional cyber security controls and safeguards...*

Develop and implement the required and desired use cases and controls.

### In conclusion
The powerful high-speed 5G networks, Internet of Things (IoT) and artificial intelligence (AI) significantly transforming the way people work and live, as their daily life activities rely more and more on data. The most of these data transferred across the Telecom operator's networks and systems, for this and all the aforementioned ensuring the privacy and protection of the customers PII information and all other sensitive data must be part of any telecom operator DNA if it's not already.

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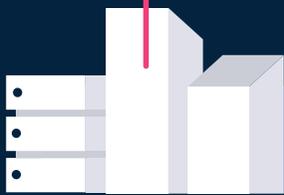
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## WHOLESALE NEWS

# MTN Cameroon, Camtel Strike Roaming Agreement

MTN Cameroon and state-owned Cameroon Telecommunications (Camtel) have penned a national roaming agreement which will see the latter expand its coverage significantly. In a statement, MTN Group detailed the deal will expand signal in areas of Cameroon where the state operator has no presence. MTN's coverage in Cameroon covers 97% of the population with 2G, 90% with 3G and 70% with 4G. The Cameroonian government is eager for citizens to adopt digital solutions as part of wider plans to modernize its economy. The plan also lines up with MTN Group's Ambition 2025 plan to be the leading digital solutions provider in Africa. "One of MTN Group's strategic priorities is to build the largest and most valuable



platforms, including network as a service," said MTN Group President and CEO Ralph Mupita. "The roaming agreement with the state-owned Camtel is a significant development in our work to deliver on this: we are excited to bring our world-class services closer to the people of Cameroon.

# ANCOM Sets Tariffs for Pole Access

Following a consultation, Romania's National Authority for Management and Regulation in Communications (ANCOM) has adopted indicative tariffs charged to telecoms network operators for access to the overhead infrastructure owned, managed or leased by electricity distribution companies and local public transport services. Described as an important step in the implementation of the Infrastructure Law, the tariffs are intended to simplify negotiations between the parties and help stimulate the development of communications networks. For access to the infrastructure of electricity distribution companies, ANCOM has set rates of RON2.05 (USD0.45) per pole/cable/month for poles supporting low voltage overhead power lines, RON3.51 per pole/cable/month for those carrying medium voltage lines and RON28.55 per km/cable/month for overhead infrastructure supporting high voltage lines. The indicative tariff for poles used by local public transport services is RON7.44 per pole/cable/month. The rates are exclusive of VAT and can be indexed annually to the inflation rate.

# ComReg Issues Update on Wholesale Fixed Access Charges Decision

Ireland's Commission for Communications Regulation (ComReg) has issued a statement regarding the decision it published in December 2021 – Decision D11/21 – relating to the setting of prices for several regulated wholesale fixed line access services. Whilst fixed line incumbent eir appealed the decision in January 2022 and sought a stay on the operation of D11/21 pending the outcome of the appeal, ComReg has now confirmed that the Commercial Court dismissed eir's application late last month. In so doing, the court has reportedly taken into account an undertaking given by Vodafone and Sky that should eir be ultimately successful in its appeal, they will 'repay to [the incumbent] the difference between the decision price and the pre decision price and, if lower than the pre decision price, the price to which Eircom may be found to be entitled following determination of the Appeal in respect of wholesale prices paid [by Vodafone and Sky]'. As a result of the Commercial Court's ruling, ComReg has confirmed that the prices set out in D11/21 have applied since 1 March 2022, while it noted that the hearing of eir's appeal is scheduled to commence on 19 July 2022.

# CTU Scraps Plan to Impose Temporary Regulatory Measures on the Wholesale Mobile Market

The Czech telecoms regulator, the Czech Telecommunication Office (CTU), has confirmed that it will not issue a proposed new measure to impose temporary regulatory measures on the country's wholesale mobile market. The CTU issued a press release noting that, having studied results of the public consultation, it had decided against using this regulatory tool even though it claimed to have received 'massive support' for the proposal from all respondents except the nation's three mobile network operators. In February 2022 the EC issued a decision requiring the CTU to withdraw its 2021 draft decision relating to wholesale mobile

access obligations. Whilst the regulator maintains that MVNOs are not able to offer competitive services due to allegedly unfavorable wholesale access conditions, and proposed to designate O2, T-Mobile and Vodafone as holding significant market power (SMP), and to oblige them to provide national roaming to all, the EC had serious doubts as to the compatibility of the draft measure with EU law and opened an in-depth investigation. Subsequently, on 24 January 2022 BEREC issued its own opinion on the EC's serious doubts, partially supporting the Commission's initial findings. The CTU had intended to implement the temporary measures to

designate the three MNOs as having SMP in this market and, furthermore: 'Proposes to impose two operators' obligations to offer two mobile service regulatory packages in all its existing mobile network access agreements (2G, 3G, 4G and 5G). The regulation of package prices will take the form of a ban on margin squeezes in combination with the setting of a maximum wholesale price for regulated packages. All three mobile network operators will be obliged to allow access on both packages to non-discriminatory conditions, even in the case of newly concluded contractual relations with the MVNO.' However, it has now dropped this plan.

# Digicel, Cable & Wireless Agree to Reduce Caribbean Roaming Charges



Liberty Latin America (LLA)-backed Cable & Wireless Communications (CWC) and Denis O'Brien's Digicel Group have signed the 'Declaration of St George's, Towards the Reduction of Intra CARICOM Roaming Charges', as they seek to lower pan-Caribbean roaming costs by up to 70%. The two companies seek to eliminate 'bill-shock' and make roaming charges more transparent across the 15 Caribbean Community (CARICOM) member states. The declaration was signed by Kieran Mulvey, Director of Government Affairs at Digicel Group and Kurleigh Prescod, Vice President (South Caribbean) at CWC.

Following the signing, Keith Mitchell, Prime Minister of Grenada and Lead CARICOM Head of Government with responsibility for Science and Technology, commented: 'Parties to this declaration have agreed on an implementation timeframe between the second and third quarter of this year, giving consideration to the technical aspects of the implementation and the public awareness campaigns that must take place.' However, some interested parties have observed that the terms of the declaration do not go far enough. Mia Mottley, Prime Minister of Barbados, who attended the signing virtually stated: 'This a large step but we

are short of our destination to eliminate roaming completely … Data, information and connectivity must be cheap, must be available and must be fast … CARICOM has negotiated with a local, regional and international industry as one, in the explicit pursuit of its single market and space. We must move on to the next steps of creating a single ICT regulatory environment in CARICOM and ensuring that the cost born by our citizens for telecoms services relate to the cost incurred by telecoms providers, and not have deemed rates of return that are outside the pockets of our citizens.' CARICOM, which was established back in July 1973, currently comprises 15 member states and five associate members, stretching from the Bahamas in the north to Suriname and Guyana in South America. The member states include Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname and Trinidad and Tobago. The associate members are Anguilla, Bermuda, British Virgin Islands, Cayman Islands and Turks and Caicos.

# Ukrainian Mobile Operators Unite, Launch National Roaming

Mobile operators Kyivstar, Vodafone Ukraine and lifecell together with the Ministry of Digital Transformation of Ukraine, the State Service for Special Communications and Information Protection of Ukraine, the National Commission for State Regulation in the Fields of Electronic Communications, Radio Frequency Spectrum and Provision of Postal Services together with the Ukrainian Association of Telecom Operators "Telas" announce the launch of national roaming in Ukraine. "This means that subscribers can switch to the network of other operators if it is not possible to use the signal of their mobile operator. In the context of military aggression, mobile operators and the Ministry of Digital Transformation, State Service for Special Communications and Information Protection of Ukraine, the National Commission for State Regulation in the Fields of Electronic Communications and Telas have joined forces to ensure the continuity of communication services for their subscribers," the joint statement said. "First of all, it will be connected in the zone of active hostilities (Kharkiv, Kherson, Sumy, Poltava, Dnipropetrovsk, Zaporizhia, Donetsk, Luhansk, Kirovohrad, Mykolaiv regions), then in Chernihiv, Zhytomyr, Cherkasy and Vinnytsia regions and subsequently throughout the territory Ukraine. That is, if the connection of one operator disappears, the subscriber will be able to manually connect the connection of another operator," the message says. Currently, national roaming is available for voice calls and SMS messages within Ukraine from all mobile operators.

# Windstream Wholesale Taps Infinera for Modernization

Windstream Wholesale and Infinera have announced plans to collaborate on an initiative to transform Windstream's optical network infrastructure. According to the press release, the modernized network will 'enable Windstream to offer innovative new connectivity services optimized to seamlessly support the hyperscale capacity growth of its customers'. The upgrade will form part of Windstream's Intelligent Converged Optical Network (ICON) initiative and utilize a new platform jointly pioneered by both companies, called Node-on-a-Blade.

# ICCC Details Findings Following Preliminary Inquiry into Broadband Prices

Papua New Guinea's Independent Consumer and Competition Commission (ICCC) has announced the conclusion of the preliminary inquiry it launched following consumer complaints regarding the prices of retail broadband internet services in the country. The complaints reportedly came amid growing concern from consumers that 'substantial' reductions in the prices for wholesale internet broadband services by PNG DataCo Limited in 2021 were not being passed down to consumers at the retail end. With the ICCC having conducted its inquiry between December 2021 and March 2022, seeking to identify the underlying issues relating to these consumer complaints, it confirmed it had received feedback from major industry stakeholders including DataCo, Digicel PNG, Daltron PNG, Telikom PNG and Datec PNG. Among its key findings were: different cost structures for ISPs in PNG are affecting their pricing for internet services at retail level; the National Transmission Network (NTN) operated by DataCo is mostly 'unreliable' with too many prolonged outages; and prices for DataCo's metro fibre service remain relatively high despite an advertised 66% price reduction. Meanwhile, the ICCC said that vertical integration issues had been identified with DataCo; with the latter having control of key wholesale infrastructure while also participating in the retail market the watchdog said this raised potential competition concerns.

Commenting, ICCC commissioner and CEO Paulus Ain was cited as saying: 'The ICCC understands that NICTA will be conducting an enquiry this year into the retail market for internet broadband services in PNG. This is due to create regulatory oversight in this segment of the market and enable ISPs to compete efficiently, in providing services to consumers.' According to Ain, the ICCC will 'continue in its efforts to rectify market failure issues in the market, by supporting NICTA throughout its review process in providing submissions/information, from findings the ICCC has uncovered through investigations/enquiries of its own, including this current inquiry.'

## TECHNOLOGY NEWS

# Jordan Eyes 5G to Transform Public Services, Power Digital Economy

Plans are underway to roll out 5G in Jordan, heralding a digital-led future for the Hashemite Kingdom. 5G is a fundamental technology to enable the next generation of digital services and help establish the country as a knowledge-based economy. The next-generation technology will boost Jordan Vision 2025 by accelerating the ICT sector in the country, already one of the fastest-growing sectors of Jordan's economy. HYPERLINK "https://www.trade.gov/country-commercial-guides/jordan-information-and-communication-technology"Data shows the ICT sector accounts for 3.8 per cent of the country's gross GDP, with total annual revenue exceeding $2.3 billion. There are currently more than 900 active companies in the sector that directly employ about 22,000 employees. For Jordanian carriers, 5G promises significant revenue growth potential and evolved customer experiences. We see that early adopters in the region have begun to reap the benefits of 5G. For instance, Kuwait was one of the countries in the Middle East with the earliest and fastest 5G development. Since June 2019, three carriers deployed 5G on a nationwide scale and they've reported strong business results that have been bolstered by their 5G user growth as well as 5G technology efficiency and competencies. But the benefits of 5G go beyond enabling operators' business growth. 5G is also an enabler of numerous verticals, industries, businesses and

public services. Most importantly, 5G will enable completely new applications only accessible with advanced technologies, such as lag-free ultra-HD video over wireless, truly smart cities, autonomous mobility, telemedicine, mobile AR and VR, and soon, the metaverse. Further, 5G will enable Jordan's enterprising business community to advance business operations, enter new markets, access finance and attract talent. Jordan's entrepreneurship spirit is the envy of the region. Access to affordable technical talent, good infrastructure, a liberalized telecom sector, proximity to key regional markets, and government support have spurred a thriving private sector. According to the Ministry of Digital Economy and Entrepreneurship, 27 per cent of Middle East and North Africa tech entrepreneurs are Jordanian, even though the country accounts for only 3 per cent of MENA's population. To fortify these gains, the government is continually exploring new ideas to boost the digital ecosystem. A promising initiative is Jordan Source — part of the Jordanian government's youth technology and jobs program — designed to facilitate and ease new investments into Jordan's digital outsourcing economy and create more jobs for the country's digital talents. Jordan Source, and other similar initiatives, recognize that the country's greatest resource is its youth talent. The country has a young, well-educated, technologically-savvy, highly-skilled

population bilingual in English and Arabic with a neutral accent and eager to work at competitive wages. More than 50 per cent of the population is under the age of 24, with 22 per cent holding degrees in IT, computer science and engineering. As a leading technology provider in Jordan, we support these efforts to nurture the country's ICT talent. Working within broad public/private sector ecosystems, we continue to invest in various skills development to ensure that organizations have access to the qualified personnel they need to pursue their digital transformation goals. Huawei has longstanding programmes such as Huawei Middle East ICT Competition, Seeds for the Future and the Huawei ICT Academy to support the government's vision to build a sustainable knowledge-based economy. In the past two decades, we've helped the Middle East cultivate more than 100,000 ICT talents, out of which more than 5,000 were based in Jordan. In the Kingdom, we have worked with educational authorities, universities, other educational institutions, and partners to set talent standards, build alliances, and demonstrate the value of talent. Some of our education partners include Hashemite University, Princess Sumaya University of Technology, Jordan University of Science and Technology), and Al Balqa' Applied University (BAU). To guarantee continued success, however, the country must bolster its ICT assets against the growing threat of cybercrime. Collaboration is vital in tackling this global threat. A safer network is a shared obligation. Huawei is working with the government, industry, universities, customers, and partners to advance cybersecurity and strengthen Jordan's position as a trusted destination for foreign investment and residency. Jordan has a rich and proud history of ingenuity overcoming formidable odds, epitomized by the historical city of Petra. Today, by investing in 5G, digital transformation, and empowering the talent ecosystem, Jordan is on track to emerge as adigital economic titan of this era.

# Experts Tip mmWave for Take Off in 2022



Executives from a host of leading companies and industry groups told MWC Barcelona 2022 the telecoms industry had reached a tipping point in terms of mmWave 5G, which they predicted was poised for increased adoption this year. During a roundtable discussion, GSMA head of network Henry Calvert stated mmWave 5G will supercharge next-generation services and applications. Qualcomm VP of business development Philippe Poggianti explained operators are looking at the full range of spectrum for 5G services and applications: low-band for large coverage areas; mid-band for extra capacity; and mmWave for targeted areas including sports stadiums, factories or public areas. Advantages of mmWave include carrying large amounts of data at high speeds with low latency. It employs higher-frequency radio bands ranging from 24GHz to 40GHz.

Last month, US National Football League official 5G partner Verizon reported peak data rates of 3.89Gb/s for its subscribers in the stadium hosting the latest Super Bowl event. The operator employed a mix of 28GHz and 39GHz mmWave spectrum along with mid-band CBRS 3.5GHz and C-band 3.7GHz. During the roundtable, Verizon VP of device technology Brian Mecum explained it had installed more than 150 mmWave antennas in the sports ground to provide coverage of the entire field. Verizon was the first operator to get onboard the 5G mmWave train, in 2019, and has held a leading position ever since. It is using mmWave and C-band for its ultra-wideband 5G service and last week announced plans to cover 175 million people with the service by the end of this year, two years ahead of its original target. In 2021, Japan became the first country

where all major operators had deployed commercial mmWave 5G services, while Australian operator Telstra offers compatible hotspots in a cricket ground. Poggianti stated 150 mmWave devices including handsets and laptops from 50 different vendors are either available or in the process of being launched. He predicted one-in-five smartphones will be compatible by 2023. The Qualcomm executive was bullish future spectrum auctions in Spain, the UK and France would spur adoption of mmWave 5G in Europe. Brazil conducted a multiband auction in November 2021 which included 26GHz of mmWave, while India's government plans a 5G spectrum auction in April or May. Cheong Hai Thoo, VP of mobile network engineering at Singtel, expects mmWave deployments for enterprise to be more targeted at specific use cases including uploading HD video. "This is where mmWave will come in very handy." "We are less worried about the end device. We think the enterprise will be able to bring in very customized devices to support mmWave." Singtel is conducting a trial of mmWave with the Singaporean government and an airport. Cheong said the first commercial deployments of the frequency began earlier this year in wearable tech factories. Mecum said while the consumer side of mmWave is what gets people excited when he speaks at industry events, Verizon is also using it in manufacturing, including in a US factory producing radios for the spectrum. "There's absolutely quite a bit that we're doing with mmWave for businesses by using private networks, as well as public 5G, across the board."

# France to Adopt New Measures for Development of Industrial 5G

The French government has disclosed plans to adopt several new measures aimed at accelerating the development of industrial 5G in France, on the recommendation of Philippe Herbert, President of the Mission 5G Industrielle. The government is aiming to simplify access to 2.6GHz spectrum (by amending

the decree on fees for utilizing the airwaves in the band) in order to stimulate industrial 5G projects, along with exploring potential access to the 3.8GHz and 4GHz bands. Other measures include the launch of a joint call for 5G private network projects by France and Germany, with industrial players invited to express their interest

before 8 April. Further, the government is also providing EUR47 million (USD51 million) in funding for seven new research and development (R&D) projects under the national 5G acceleration plan (launched in July 2021); the program has funded a total of 31 projects to date, to the tune of EUR478 million.

# World First Trial of 5G HAPS Technology Takes Place in Saudi Arabia in The Red Sea Project

UK company Stratospheric Platforms Limited (SPL), a partner of German telecommunications company Deutsche Telekom (DT) has successfully trialed pioneering technology that provides 5G network coverage from the stratosphere. Conducted on February 5th at The Red Sea Project site on Saudi Arabia's western coast, the test was the world's first demonstration of the High-Altitude Platform System (HAPS) using aircraft to extend a 5G service, covering a geographical area of 450 km2. The trial was facilitated by Saudi Arabia's digital regulator, CITC. Speaking after the successful conclusion of the test, Dr. Mohammed Al Tamimi, Governor of CITC, highlighted the significance of the event: "This is a great accomplishment for Saudi Arabia's ICT sector. The deployment of HAPS in the Kingdom has been made possible by an enabling ICT ecosystem and strong government support. This successful demonstration puts us at the technological frontier globally and takes us closer to our Vision 2030 goal of extending high-quality ICT access to every part of the country." HAPS are radio stations located on an object flying or floating in the stratospheric layer. Stratospheric Platforms Limited used a German-made, long-endurance Grob aircraft for the Saudi trial. While HAPS remains an emerging technology, it can potentially bring connectivity to areas that are not covered, or are only partially covered, by cellular networks. Positioned at high altitude and providing a clear and evenly distributed signal, HAPS enables additional capabilities, including the Internet of Things (IOT), emergency communications, disaster recovery, temporary coverage for events and tourist hotspots, and terrestrial site backhaul. "The success of the trial in Saudi Arabia's western coast had many challenges" noted Richard Deakin, CEO of Stratospheric Platforms. "Now that the 5G HAPS technology has been proven, the question is one of further commercial development. This is why having a diverse consortium such as ours, which includes strong government support, is essential to the continued realization of the program." Technology advancements in Saudi Arabia are being driven by the country's Vision 2030, a whole-of-society program designed around economic diversification. Recent ICT initiatives include allocating more than 23 GHz of frequency spectrum for commercial and innovative uses, the launch of regulatory sandbox projects, open access for network operators, and the full-spectrum adoption of the WiFi-6e, becoming the first country in the EMEA region to do so.



Saudi Arabia demonstrated first global trial of 5G Networks using a Stratospheric High Altitude Platform Systems (HAPS) In the Red Sea Project

The trial provides 5G coverage and innovative solutions for major global challenges through High Altitude Platform Systems (HAPS) to ensure continuity of service in hard-to-reach areas

**Targets**

Ensuring continuity of service

Covering remote areas

Achieving global pioneering

Adopting innovative technologies

Increase reliance on environment-friendly technologies

**Highlights of the "5G HAPS" trial**

Provides Coverage for an area of 450 km²

Provides Downlink speeds of up to 90 Mbit/s using 10 MHz channel

Provides 5G coverage

Connected Users from land ,sea and air simultaneously

Use Platforms of 5G HAPS at an altitude of 14 km above sea level

**Success Partners**

GACA

The Red Sea

citc.gov.sa

# Rogers Claims Canada's First Commercial 5G Standalone Launch

Rogers Communications has announced the launch of Canada's first commercial 5G Standalone (SA) network services, enabling mobile customers with 5G SA capable devices including Google Pixel 6/6 Pro smartphones to connect to the new network, which was built exclusively with Ericsson. Users with suitable devices will automatically connect to the 5G SA service where it has been rolled out and Rogers says it will be onboarding other major devices later in the year. The announcement came six months after Rogers reported completion of its national 5G SA core network rollout in October 2021, alongside the country's first 5G SA device certification. Rogers' CTO Jorge Fernandes declared that the 5G SA network 'will bring immediate benefits to customers by increasing coverage, scalability and availability, and improving network response times, enabling a world of new use cases.' A press release highlighted that 5G SA brings lower latency and network slicing capabilities, expands the 5G footprint and supports future enterprise and consumer applications, such as dedicated private networks, public safety systems and edge computing for AR/VR consumer applications. Rogers added that its 5G SA 'is built to scale massively and will support the unprecedented growth of IoT devices in the years to come.'

# NTT DOCOMO and NEC to Incorporate 5G SA Core Using AWS' Cloud Computing

Japan's NEC has announced that, working with mobile operator NTT DOCOMO, the two companies have launched proof-of-concept (PoC) testing to operate the vendor's 5G core network (5GC) service in a hybrid cloud environment that utilizes the Amazon Web Services (AWS) cloud and end-to-end cloud-native network architecture. The three firms hope to use the PoC trial to establish the viability of cloud-native mobile networks leveraging a public cloud for network function virtualization (NFV). In the press release, NEC noted that the PoC will 'validate the energy efficiency and high performance that AWS Graviton2 processors can bring to NEC's 5GC in the AWS cloud to achieve an energy-performance advantage over comparable solutions. 'We are excited to conduct this proof-of-concept with NEC's advanced cloud-native 5GC and AWS' innovative cloud infrastructure technology. We believe this collaboration will lead to the further evolution of networks and network virtualization,' said Naoki Tani, CTO and Executive General Manager of the R&D Innovation Division of DOCOMO, adding: 'The PoC will realize a hybrid cloud environment for telecom operators, resulting in accelerating the telecom industry's evolution by delivering significant value to our customers.'
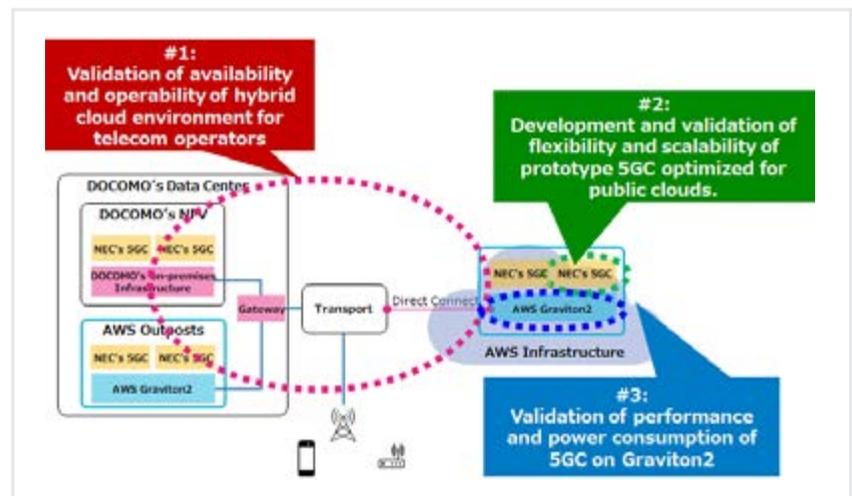


# KDDI Rolling Out HPE's 5G Standalone Virtualized Base Stations in Japan

Hewlett Packard Enterprise (HPE) has announced that Japanese telco KDDI (au) is using its HPE ProLiant DL110 Gen10 Plus-Telco server for the commercial network operation of O-RAN compliant 5G Standalone (SA) base stations in Japan. In a press release, HPE confirmed that the Japanese operator is ramping up the buildout of 5G base stations throughout the country to provide more of the population with access to the next generation mobile technology. The vendor's Telco server being deployed is reportedly designed for Open Radio Access Network (RAN) and vRAN workloads, and is optimized for edge applications that require high bandwidth and low latency. 'The O-RAN compliant 5G virtualized base stations we developed are now commercially operational,' said Kazuyuki Yoshimura, Chief Technology Officer, KDDI Corporation. 'With open and virtualized base stations, KDDI aims to provide customers with advanced communication services which flexibly and quickly support their use cases. KDDI will continue to take the lead in developing innovative network technologies, while providing customers with safe and secure communications in addition to new value added experiences.' Earlier this month KDDI claimed a 'world first' when – working with equipment manufacturers Samsung and Fujitsu – it announced the switch-on of its first commercial 5G SA Open RAN site powered by vRAN in Kawasaki, Kanagawa prefecture. Launched on 18 February 2022, the site is carrying live traffic on KDDI's network thanks to the deployment of Samsung's 5G virtualized CU (vCU) and virtualized DU (vDU), Fujitsu's Massive MIMO radio units.

**ARTICLE**

# The New Economics Of Cellular Backhaul

Fast, reliable, and aordable broadband internet access provides numerous societal and cultural benefits including improved economic opportunities, better access to health, education, and government services, nearly unlimited entertainment options, and much more.

> *Rural and remote populations may not have reliable internet access for years to come.*

Nearly four billion people worldwide still do not have reliable access to broadband internet, and despite the heroic upgrades made by network providers over the past few years, just 50 percent of worldwide mobile connections used 4G as of 2020. Only 72 percent of urban households and 37 percent of rural households across the world have broadband access at home, and in developing countries, these numbers are even lower (65 percent and 28 percent, respectively).

Technological advancements have made building a cell site easier and cheaper than ever before, but the cost of connecting those towers to the core network can be prohibitively high, given the cost of running fiber to each cell tower. If nothing can be done to reduce the price of middle-mile broadband connectivity, the rural and remote world will remain unconnected.

**Christophe Bauer**
Vice President, Commercial Sales
Astranis

ASTRANIS

RELIABLE BROADBAND CONNECTIVITY



% OF POPULATION CONNECTED

72% — 37% — WORLDWIDE

65% — 28% — DEVELOPING COUNTRIES

*as of 2020

URBAN HOUSEHOLDS
RURAL HOUSEHOLDS
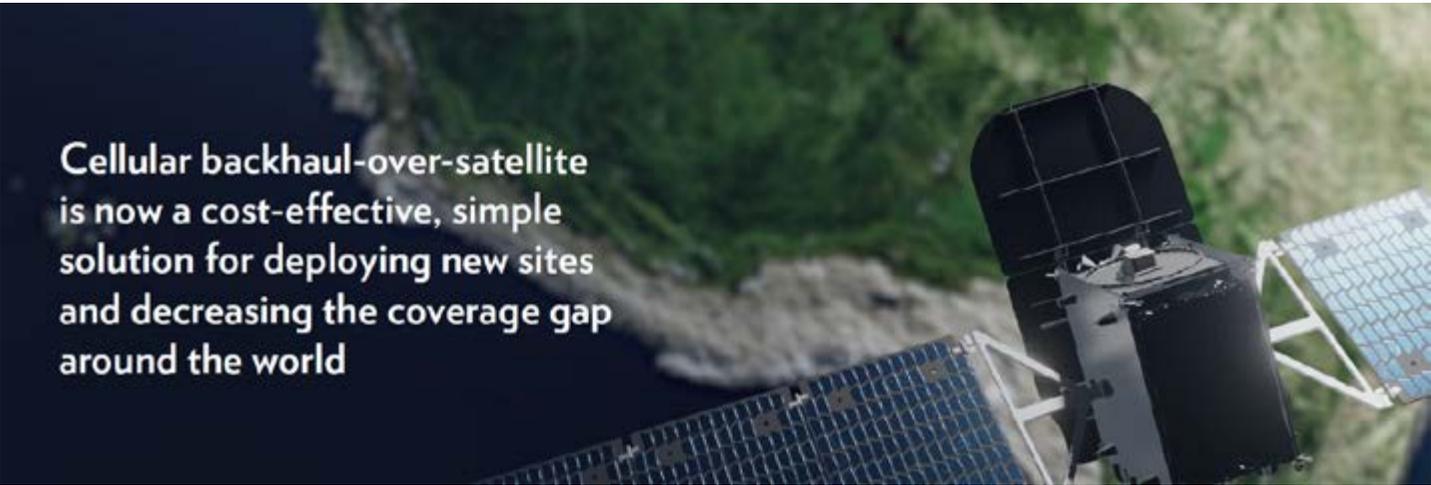
Cellular backhaul-over-satellite is now a cost-effective, simple solution for deploying new sites and decreasing the coverage gap around the world

Traditionally, satellite connectivity wasn't even considered for cellular backhaul given its high costs — but times have changed. Now, thanks to several proprietary technical innovations, small and low-cost MicroGEO communications satellites from Astranis can dramatically reduce the cost of bandwidth. This is possible because MicroGEO satellites are purpose-built to target bandwidth into a specific geographic region, like the state of Alaska, or a medium-sized country like Peru.

With a MicroGEO satellite, operators get the bandwidth they need, right where they need it. This compact form factor is perfect for piloting new markets and market segments, and additional MicroGEO satellites can increase capacity to meet demand once the business case has been proven out.

For illustrative purposes, consider an actual case study of an anonymous cellular backhaul service provider we'll call CBH. In this example we are using order-of-magnitude data based on real customer conversations. Before selecting Astranis MicroGEO, CBH served 150 cell sites and their operating cost structure was dominated by the high price of bandwidth. CBH amortized capex for new site bringup over an eight-year period, and bandwidth leasing fees represented over 70 percent of total monthly costs. This limited CBH's growth — it didn't justify a risky, high-opex strategy, so CBH couldn't expand the number of sites that they cover.

By switching to MicroGEO, CBH was able to secure middle-mile bandwidth at a more than 75 percent discount compared to their legacy coverage. Making the switch to lease a dedicated MicroGEO satellite from Astranis allowed CBH to expand to over 600 sites without increasing opex.

This translates to over 200 percent top-line revenue growth and a 360 percent increase in monthly profit, resulting in an extended footprint reaching an additional 60,000 new wireless users while maintaining a lower cost per site.

MicroGEO oers a compelling price point and business model that has caused telcos and internet service providers to reconsider their stance towards satellite backhaul.

Legacy satellite bandwidth is expensive, undermining the business case for expanding coverage into rural and remote locations. With Astranis, a new era is here: not only can service providers enable cellular backhaul at an aordable price, they can do so with custom-built MicroGEO satellites dedicated to their business success.



Before MicroGEO, the high cost of legacy geostationary satellite bandwidth directly limited potential for network expansion and top-line growth

## REGULATORY NEWS

# Telecom Giants Urge Unity on 6GHz Waves to Make Up Lost Ground in EU

Heavyweight equipment vendors, operators and select regulators highlighted the 6GHz frequency band as the last opportunity to usher in a golden age of 5G connectivity and the true benefits of the network standard. Joining hands in Barcelona on 1st March for Mobile World Congress were European operators including Vodafone, Deutsche Telekom, Telefonica, Orange, and Telia. Alongside the carriers were equipment manufacturing giants Ericsson, Huawei, Nokia and GSMAi, the data consultancy arm of the trade association. Deutsche Telekom VP of spectrum policy and projects Jan-Hendrik Jochum said: "In the last 10 years [the EU industry] lost a lot of ground due to regulation which is much more investment-friendly in the US, and on the other hand we face the situation of mass fragmentation all over Europe as not all operators are following the same rules. This is resulting in a problem for delivering the European targets that are set by the Commission and this situation has resulted in a 5G investment gap of €150bn." By 2030, the EU aims to have all EU households connected to gigabit connectivity and all populated areas covered by 5G. Jochum added regulators had previously failed to supply operators with the required the framework and airwaves, and warned any further hurdles to attain "key" 6GHz waves could stifle the industry further. "Not everything that was needed by the mobile industry was given [by regulators] in the past, and now we are facing a situation where 6GHz is in fact the only possible resource that can sort the situation for us and keep us competitive in terms of network quality products", he explained. Telefonica head of spectrum strategy Roberto Rodriguez agreed, stating the demand on 5G capacity is doubling every two years, and service quality could "saturate" if regulators do not assign the bands to operators. GSMAi warned that governments need to carefully consider what is the most efficient use of 6GHz spectrum when holding auction, as the 6GHz block is the largest remaining



piece of mid-band spectrum that can be licensed exclusively to operators - rather than being provided unlicensed, in which case it can be used for boosting fixed line broadband. Kalvin Bahia, GSMAi Principal Economist who co-authored the trade body's latest report 'The Socioeconomic Value of the 6GHz Band', said complete licensed use of the 6GHz band "will deliver the largest benefits across all countries". "If less spectrum [from the 6GHz band] is assigned to 5G this will likely lead to higher costs [for operators] and lower speeds. Annual operations expenditures can rise by 70%, and if just the upper part of the band is licensed then cost will go up by 20%," said Bahia. GSMAi's research also found unlicensed assignment of 6GHz airwaves was discovered to be the least beneficial for global connectivity quality and coverage. The GSMA advocates for all operators to eventually provide 5G which yields speeds of 100Mbit/s download and 50Mbit/s upload minimum for user experience at any time while "on the move". Without a varied use of a mixture of spectrum from different bands to provide widespread coverage

and high speeds, services will become more expensive as more base stations are needed to plug gaps as data heavy new technologies such as connected cars and VR/AR become more prevalent. The trade association also found tapping into this mid-band 5G can add more than US$610 billion to global GDP by 2030, but insufficient spectrum availability for operators can lead to a $360 billion of GDP growth lost. Regulators from France, the UAE and Tunisia expressed their support of licensed use of the 6GHz spectrum for mobile. Tariq Al Awadhi, Executive Director of spectrum affairs at Telecom Regulatory Authority for the UAE, noted there are 234 million global 5G connections accounting for 5% of mobile connections and it is forecast to be the dominant mobile standard by 2027. He urged the industry to rally behind the need for licensed spectrum use to sway delegates at World Radio Communication Conference 2023 (WRC-23) to make "balanced decisions" when planning spectrum roadmaps. Olfa Jammeli, general director of Tunisian regulator Frequency National Agency

(ANF), agreed and pledged the upper 6GHz band for mobile, as previous allocations to WiFi have not hit requirement targets. "The ANF has registered no interest in allocating the upper 6GHz band for unlicensed WiFi 6 as the need of Tunisia is to reinforce the mobile network and the transport network.

I highlight that the Tunisian administration allocated the 5GHz for WiFi since 2017 and the exploitation of this band has not exceeded 20% of what was promised." The GSMA with backing from Ericsson, Huawei, Nokia and ZTE put out a statement in May last year, calling on governments to make

at least 6,425-7,125 MHz available for licensed 5G. The trade body also stated 2GHz of mid-band should be guaranteed between 2025-2030 and highlighted how 6GHz is the only mid-band wave with GHz-level bandwidth.

# CITC Launches New Licensing Approach for Telecommunications Sector



Saudi Arabia's Communications and Information Technology Commission (CITC) launched a new licensing approach for the telecommunications sector, on the sidelines of the annual ICT Indicators Forum 2022. In a statement, the CITC stated that the procedure comes as part of its efforts to enhance the Kingdom's leadership in facilitating business, adopting a more liberalized licensing system, and developing the sector's regulatory environment in accordance with the international best practices. The new approach restructured licenses and relevant financial considerations. The licenses were, accordingly, re-divided into four types, three of them are individual, and one is general that includes 13 licenses, the authority stated. It added that the division reflects the authority's efforts to maintain the market balance, attract more investments to the Kingdom, and boost its role as a digital regulator.

# PTA Likely to Review Telecom Infrastructure Provider Licensing Framework

The Pakistan Telecommunication Authority (PTA) is likely to review the Telecom Infrastructure Provider (TIP) licensing framework and may reorganize it for the advent of Carrier Neutral Data Centers and Cable Landing Stations infrastructure service providers by opening up the market to new entrants as well as existing licensees. Official documents revealed that owing to increasing indigenous demand for local/international content, collection and processing of data and for improving the access to the internet, PTA is likely to organize a study to assess the prevailing market practices concerning co-locations services, cross/inter connects and cloud services and the impact of carrier-neutral data centers and cable landing stations on the existing market. With the help of such a study, PTA will review the Telecom Infrastructure Provider (TIP) licensing framework and will reorganize it for the advent of Carrier Neutral Data Centers and Cable Landing

Stations infrastructure service providers by opening up the market to new entrants as well as existing licensees. The licensing obligations for interested investors/licensees shall be articulated in accordance with the stipulations of the Personal Data Protection Act – 2021 and other appropriate guidelines in practice. To lower market barriers for new entrants, all telecom infrastructure and services licensees will be obliged to ensure their presence for cross/inter-connect purposes. PTA will invite international operators to host their services in such facilities by having inter/cross-connect arrangements with local licensees. No international operator will be permitted to offer their services directly in the market without having a license or a formal arrangement with a legitimate licensee under intimation to PTA. For ensuring necessary compliance, PTA will visit such facilities periodically and will ensure maximum transparency of the different services being rendered by the

facility owners. Licensees will be obliged to establish lawful interception at all such facilities as part of licensing obligation. All such facilities will adhere to National Cybersecurity Policy – 2021 directives for securing the locations and the same will apply to all the hosted service providers. International operators/service providers using such facilities for telephony/internet traffic transit purposes without landing the traffic locally will be exempted from lawful interception and other obligations applied on local licensees. In this regard, a simplistic encouraging framework shall be developed by PTA in-consultation with respective stakeholders and the Ministry of Information Technology and Telecommunication (MoITT) to effectively utilize the technology zones/industrial zones allocated and available areas already established in Pakistan in addition to other investment model facilitations with redundant commercial power and redundant optic connectivity ecosystems.

## Japanese Cellcos Divided Over Radio Frequency Auctions Proposal

Japan's mobile network operators (MNOs) have reacted badly to a proposal to embrace an auction system for allocating radio frequency spectrum and, amid heated arguments over the plan, have reportedly split into two distinct camps. The Ministry of Internal Affairs and Communications (MIC) is looking to implement a spectrum auction to decide who gets rights to precious spectrum – mindful of anticipated increased demand for airwaves in the country as operators deploy bandwidth-hungry 5G systems.

However, some critics of the plan say that rising bids could ultimately result in higher tariffs for end users as MNOs look to recoup the outlay of spectrum investment. Japan is expected to drill down into the figures as it finalises the viability of this approach before drawing up its final policy over the summer. However, whilst the likes of NTT DOCOMO President Motoyuki Ii has reportedly expressed his opinion that Japan 'should consider introducing an auction system as the basic method for spectrum allocation', his change of

stance was greeted as a 'bolt out of the blue' in some quarters as until now, all major MNOs have been less than positive about adopting spectrum auctions that could generate bidding wars and spiraling prices. Countering DOCOMO's position, Rakuten chairman and president Hiroshi Mikitani objected to the auction proposal, declaring a 'resounding no' via Twitter, and in a sideswipe to DOCOMO, said the plan would 'revive the oligopoly of companies with excessive profits.

## US Exempts Internet Communication Services from Russian Sanctions

The US Treasury has exempted the provision of internet communication services from US sanctions against Russia, in a move welcomed by human rights and open access groups, Datacenterdynamics.com reported. A statement from the US Office of Foreign Assets Control said: 'The exportation or reexportation, sale, or supply, directly or indirectly, from the United States or by US persons, wherever located, to the Russian

Federation of services, software, hardware, or technology incident to the exchange of communications over the internet, such as instant messaging, videoconferencing, chat and email, social networking, sharing of photos, movies, and documents, web browsing, blogging, web hosting, and domain name registration services, that is prohibited by the RuHSR [Russian Harmful Foreign Activities Sanctions Regulations], is authorized.' Certain exceptions apply, such as transactions with a list of Russian financial institutions. Following US sanctions imposed on Russia in late February, internet backbone providers Cogent and Lumen stated they would end data transmission to Russia, although according to Datacenterdynamics' report Lumen appeared to remain connected to the country, while various other US companies including Cisco, Google, Microsoft, Oracle, Apple, PayPal, Visa and Mastercard have suspended Russian business, whereas Amazon Web Services (AWS) ceased taking new customers in Russia or Belarus without closing its operations. On the other hand, content delivery network (CDN), Edge and web infrastructure companies Cloudflare and Akamai have declared they will continue operating in Russia to support internet access for citizens.

## ARTA Dismisses NTC's Motion, Approves Automatic Permit for NOW Telecom

The Anti-Red Tape Authority (ARTA) of the Philippines has granted its approval for NOW Telecom's application for an automatic extension of its mobile license permits, paving the way for it to offer mobile broadband services across the country. Local press reports note that on 31 March 2022 ARTA issued a resolution throwing out a motion filed for reconsideration by the industry regulator, the National Telecommunications Commission (NTC), and declared NOW Telecom's application for cellular mobile telephone system (CMTS) provisional authority as complete. The operator's efforts to secure a toehold in the mobile broadband market have been

hindered for more than a decade, but the provisional authority covers rights to use 220MHz of spectrum ranging from 1970MHz-1980MHz, paired with 2160MHz to 2170MHz and 3.6GHz to 3.8GHz, including 5G frequencies for mobile and fixed wireless broadband. An order of automatic approval was issued by ARTA on 1 March 2021. 'There being neither legal basis nor cogent reason to reverse its disposition through omnibus order dated Jan. 31, 2022, the authority resolves to deny the NTC's motion for reconsideration dated Feb. 14, 2022,' ARTA was cited as saying.

# India Regulator Calls For 5G Spectrum Price Cuts

India's telecoms regulator heeded calls from operators and recommended the government reduce reserve prices for spectrum in the key 700MHz and 3500MHz bands for an upcoming auction. In a statement, the Telecom Regulatory Authority of India (TRAI) confirmed the sale will include more than 100,000MHz of spectrum across ten bands, which carry 20-year licenses. It recommended the Department of Telecommunications (DoT) cut the per-MHz price of 700MHz spectrum by 40 per cent to INR39.3 billion ($516.4 million) and 3500MHz by 36 per cent to INR3.2 billion. TRAI also wants new reserve prices set for 5G spectrum in the 800MHz, 900MHz, 1800MHz, 2100MHz, 2300MHz and 2500MHz bands. The government still has to finalize the amount of spectrum to assign in the 600MHz, 3500MHz and mmWave bands. With the three major operators in the country all conducting limited 5G trials, most have called for the government to release the necessary spectrum and cut prices. They have reportedly also threatened limited participation in the auction depending on the access enterprises are given for private 5G networks. The coveted 700MHz band was not sold during an auction in March 2021 due its high reserve price.



# Minister Briefs President on Plans to 'De-Monopolize' Kazakhtelecom Group

Kazakhstan's Minister of Digital Development Bagdat Musin has given a briefing to the country's President Kassym-Zhomart Tokayev on developments in the telecoms, IT and digitalization sectors, including progress in the national strategy to 'eliminate digital inequality and strengthen control over the provision of the internet and its quality.' As reported on the websites of the Ministry of Digital Development, Innovation & Aerospace Industry (MDAI) and the President (Akorda.kz), in full-year 2021 internet quality was 'improved in 628 settlements, and this year similar work will be carried out in 140 more villages.' The President was also informed about the successful testing of 5G technology by mobile operators in Nur-Sultan, Almaty and Shymkent, in advance of planned commercial 5G launches this year in major cities. As previously reported by CommsUpdate, the MDAI has scheduled a 5G 3500MHz spectrum license auction for the end of May. The Minister also presented a plan for further development of the telecommunications market, in particular highlighting that 'work is underway to de-monopolize the group of companies of Kazakhtelecom', adding that 'a number of legislative initiatives will be adopted to improve the competitive environment.' In addition to dominating Kazakhstan's fixed broadband and fixed voice markets, state-controlled Kazakhtelecom owns two mobile network operators – Kcell and Mobile Telecom Service (Tele2/Altel) – which collectively hold a near-60% share of national cellular subscriptions, competing with VEON-backed KaR-Tel (Beeline).

# Telkom and ICASA End Battle Over South African Spectrum Auctions

It looks like one of the potential hurdles to the planned licensing of high-demand spectrum in South Africa may have been overcome after the country's number three operator Telkom ended its legal battle with regulator the Independent Communications Authority of South Africa (ICASA). Telkom reportedly reached an out-of-court settlement with ICASA late last week. Among its complaints had been that the spectrum auction process favored big mobile operators and was anti-competitive. The auction had already gone ahead – on 17 March – so there was potential for disruption had Telkom's complaint been upheld. It would certainly have been a major blow for a process that was much more successful than had been expected, raising nearly a billion dollars from the six bidders taking part. Now however, Telkom seems to be happy that the settlement addresses the main complaints that led Telkom to take its case to court; in particular it gives so-called challenger operators like Telkom further opportunity to acquire sub-1 GHz spectrum. ICASA said in a separate statement it will commence with the licensing of the unsold 800MHz spectrum band that was not sold in last month's auction and any other spectrum that is presently available for licensing. Reuters points out that in the licensing process of the spectrum, ICASA will consider the imbalances in this band and the impact of the outcome of the auction on competition in the mobile market. It will also carry out an inquiry into the existence of a secondary market for spectrum and whether regulatory intervention is required. Is the long wait – over 17 years so far – for new spectrum to expand 4G capacity and roll out 5G finally over? It may be, though the licensing of the remaining spectrum will not be over until March 2023.

# Linkem Buys 3.5GHz Spectrum from GO Internet

Italian fixed wireless operator Linkem has exercised an option to acquire 42MHz of spectrum in the 3.4GHz-3.6GHz band from regional ISP GO internet. The spectrum, covering the Marche and Emilia Romagna regions, was already leased to Linkem under a March 2018 agreement. MondoMobileWeb reports that the final transaction price was EUR4 million (USD4.4 million). Linkem has owned a 21.2% stake in GO internet since 2018 and is planning a merger with another Italian internet provider, Tiscali.

# Ten EU States Still to Implement EECC Measures

The EU has referred ten member states to the European Court of Justice (ECJ) over their failure to transpose the EU Electronic Communications Code (EECC) into national law. In February 2021, 24 countries were named as not having implemented the measures outlined in the EECC by the deadline of 21 December 2020, and by September 2021 the list was down to 18. The ten countries still to transpose the EECC are: Croatia, Ireland, Latvia, Lithuania, Poland, Portugal, Romania, Slovenia, Spain and Sweden.

# Government Launches Connecting Families 2.0 Internet Scheme

Innovation, Science and Economic Development Canada (ISED) yesterday announced the launch of the second phase of the Connecting Families initiative in partnership with 14 ISPs which are offering CAD20 (USD16) per month high speed internet services aimed at low-income families and seniors. Connecting Families 2.0 introduces significantly faster ('five-to-ten-times') speeds and increased data usage – doubling to 200GB per month – compared to the original scheme. The new phase also broadens eligibility from families receiving the maximum Canada Child Benefit to include seniors receiving the maximum Guaranteed Income Supplement. With Connecting Families 2.0, eligible participants will have the new option of 50Mbps download speed (or the fastest speed available in that region, if lower) and 200GB for CAD20, while the existing CAD10 package under Connecting Families 1.0 also remains available. No equipment or installation fees are applied. Participating ISPs to date include Access Communications, Bell Canada, CCAP, Cogeco, Hay Communications, Mornington, Novus, Rogers, SaskTel, Shaw, Tbaytel, Telus, Videotron and Westman Communications.

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# EC Approves Play's UPC Takeover

The EC has approved the takeover of UPC Poland by mobile network operator (MNO) Play (P4), which is itself part of France's Iliad group. Play announced plans to buy the cableco in September for an enterprise value of PLN7 billion (USD1.6 billion). The deal is now expected to close in early April.

# Turkey Wealth Fund Completes Turk Telekom Takeover

Turkey Wealth Fund (TWF) has completed its purchase of a 55% controlling stake in Turkey's dominant fixed network operator Turk Telekom (TT) from LYY Telekomunikasyon following the fulfilment of all requisite conditions and regulatory clearances, raising the sovereign fund's total share in the telco to 61.68%. TWF highlighted that the takeover forms part of its mission to invest in domestic strategic industries, declaring: 'With its firm commitment to public interest, TWF acts to contribute to the technological development and transformation in Turkey while benefitting from the long-term opportunities the sector offers within the context of its investment in Turk Telekom, one of the leading telecommunication companies in Turkey.' Following negotiations with LYY – a Special Purpose Vehicle (SPV) formed by a group of 29 banks – which began in December 2021, the Share Purchase Agreement (SPA) signed on 10 March set the purchase price for the 55% TT stake at USD1.65 billion. The Turkish Treasury continues to hold a 25% TT stake plus special veto power, with the remainder in free float on the Borsa Istanbul (BIST). According to TeleGeography's GlobalComms Database, TWF-backed operators now dominate all Turkish telecoms sectors, as the state fund already owns a controlling stake in Turkcell – Turkey's mobile market leader and second largest fixed broadband provider behind TT – as well as 100% of Turksat, the third-placed fixed broadband operator. TT's cellular subsidiary TT Mobil competes very closely for the title of second largest mobile operator against Vodafone Turkey.

# MTN Granted Final Approval for Mobile Banking Services in Nigeria

MTN Nigeria has announced that the Central Bank of Nigeria (CBN) has granted it final approval to provide mobile payment banking services to its customers. In November last year MTN received an approval in principle from the CBN to launch its planned MoMo Payment Service Bank (PSB), but the latest go-ahead will allow the firm to officially commence operations. Without providing additional information, MTN said in a press release that 'the date of commencement will be communicated to the CBN in accordance with its requirements,' adding: 'MTN Nigeria affirms its commitment towards the financial inclusion agenda of the CBN and the Federal Republic of Nigeria and we are excited at this opportunity to support its fulfilment.'



# NZ Regulator Clears 2degrees, Orcon Merger

A proposed merger of New Zealand-based mobile operator 2degrees and broadband provider Orcon Group won approval from the market's competition watchdog, paving the way for the creation of the third-largest service provider in the country after Spark and Vodafone New Zealand. Sue Begg, deputy chair of New Zealand's Commerce Commission (ComCom), stated the regulator was satisfied the merger was unlikely to substantially lessen competition in the country's retail and wholesale telecoms markets. She explained the merged entity "will continue to face strong competition from existing competitors, including Spark and Vodafone". 2degrees and Orcon agreed to combine their local operations in December 2021, creating an operator with more than 1.5 million mobile and 345,000 fixed-line subscribers. The merged company will operate under the 2degrees brand and have 1,800 mobile sites, offering 98.5 per cent population coverage. It will also swallow up what Begg described as the market's largest MVNO, which markets services under the Vocus brand. The deal followed Macquarie Asset Management and Aware Super, owners of Vocus Group and its New Zealand subsidiary Orcon, signing an agreement to acquire 100 per cent of 2degrees from Trilogy International Partners (TIP) and Tesbrit. The implied enterprise value of 2degrees reportedly equates to NZD1.7 billion ($1.1 billion). Orcon Group CEO Mark Callander was appointed CEO of the merged entity. In a statement, he noted the ComCom clearance is "the first step in the regulatory approval process" for the merger. He stated the outcome "recognizes that the merger will enhance competition and provide benefits to Kiwis and Kiwi businesses". Vodafone claims a total of 2.4 million customers, while Spark reported 2.4 million mobile connections and 702,000 broadband customers at end-2021.

# Malaysian MNOs Still in Discussions Over Terms of 5G Network Access Agreement

Malaysian mobile network operators (MNOs) Celcom Axiata, Digi Telecommunications, Maxis and U Mobile have said they remain in talks with the Malaysian Communications and Multimedia Commission (MCMC) over the key terms of the 5G reference access offer (RAO) recently published by Digital Nasional Berhand (DNB), the company which is rolling out the country's sole 5G



network. According to local press reports, the MNOs issued a joint statement regarding the matter, saying that discussions with DNB relating to commercial access agreements would only begin once the terms of the RAO had been settled. The quartet noted: 'To that end, the MNOs remain in discussions with MCMC to seek more clarity on some of the details in the published RAO … A recent analyst report may suggest that open topics between DNB and its key prospective customers had been resolved, but this interpretation would be inaccurate.' Of note, the MNOs have suggested that 'a majority of concerns and issues previously raised with MCMC and DNB have not yet been adequately addressed … including key principles proposed for the RAO to be consistent with industry best practices. As such, it has been claimed by the cellcos that in its current form the RAO would not enable affordable 5G connectivity for Malaysian consumers and businesses and could hinder the uptake of the next generation of mobile broadband connectivity in the country.

# Celcom, Digi Merger Faces First Regulatory Obstacle

Malaysia's telecoms regulator raised a number of competition concerns related to a planned merger of Celcom Axiata and Digi, with the broad nature of the issues highlighted likely to halt or delay the expected conclusion of the deal in Q2. The Malaysian Communications and Multimedia Commission (MCMC) advised the operators they to need to collectively address retail and wholesale areas it underscored as requiring remedial action. It highlighted the retail market for mobile and fixed broadband data services; mobile voice and text messaging; and the wholesale market for voice, messaging and mobile broadband services, including network sharing arrangements. MCMC's preliminary findings are part of a merger assessment process begun in November 2021 designed to give the operators an opportunity to comment on the agency's concerns and is not a final decision. The companies have 30 days to response to MCMC's statement

of issues. If cleared, the merged business would have 19.1 million mobile connections as of Q1 2022, data from GSMA Intelligence showed. Market leader Maxis ended the quarter with 12 million. Axiata Group and Telenor Group agreed the merger in June 2021.



# JCRA Launches Consultation to Test Interest in 5G Services

The Jersey Competition Regulatory Authority (JCRA) has launched a consultation which seeks to reassess 'interest and demand' in 5G services. The move follows an announcement in January this year in which the JCRA confirmed it was in a position to restart its 5G spectrum award process 'with immediate effect'. According to the regulator, it has restarted the licensing process with a public consultation which will look to determine how interest in 5G has been affected during the last two years, while the document also sets out the JCRA's planned approach along with key influencing factors that it intends to consider within a revised statement of

intent. Responses to the consultation have been requested by a deadline of 29 April 2022 and commenting on the matter, JCRA chief executive Tim Ringsdore said: 'We're pleased to be restarting the process for licensing 5G spectrum for Jersey, and enabling future benefits for local mobile users. As the pandemic's impact recedes and the situation with network security requirements becomes clearer, we believe that now is the right time to pick up this matter again and look forward to re-engaging with interested parties and islanders about 5G.'

# CITC Announces the End of the Transition Period for Saudi Domain Names

The Communications and Information Technology Commission (CITC) announced the end of the transition period for Saudi domain names. Private sector and individuals were given 10 months starting February 2021 to transfer domain names, in addition to three more months as an exception to allow more time for private sector beneficiaries and individuals. CITC clarified that there was a significant collaboration from private sector and individuals within the transition period. CITC assured that the domains and their services were not affected by the transferring process. Adding that the suspension and cancellation of the registration of non-transferred domain names had begun, and the non-transferred domain names will be available for registration in accordance with the approved regulations and procedures. It is noteworthy that CITC, as the Saudi domain names supervising and regulatory authority, has adopted the domain name registrar model as part of its plan to develop Saudi domain name registration services in line with international practices, and to enable the private sector to invest in this field and other related services.

# Japan's Govt Targets 95% Population Coverage for 5G in Just Two Years

According to local press reports, the government of Japan intends to issue additional 5G-suitable mobile frequencies to domestic operators to boost coverage to 95% of the population by end-March 2024 (fiscal 2024). TV network NHK World cites the Communications Minister, Kaneko Yasushi, as saying: 'Speedy expansion of 5G availability is a must. We will swiftly establish the necessary environment so that 5G technology can benefit as many people as possible'. The state plans to see cellcos increase coverage still further to 97% by the end of fiscal 2025, and 99% by fiscal 2030. Furthermore, the report claims that domestic carriers will be offered subsidies to help the deployment of base transceiver stations in remote, less economically feasible areas.

# Airtel Pays INR88bn Towards Spectrum, Will Buy 4.7% Indus Stake from Vi

Indian telecoms group Bharti Airtel has paid INR88.15 billion (USD1.16 billion) to the Department of Telecommunications (DoT) towards the prepayment of deferred liabilities relating to the acquisition of spectrum in 2015. The prepayment is for instalments that were due in the 2027 and 2028 financial years. Airtel notes that the liabilities carried an interest rate of 10% and were cleared through 'a combination of strong free cash generated by business, equity proceeds and significantly lower cost debt of similar tenor'. In a separate development, meanwhile, Airtel is set to acquire a 4.7% interest in passive infrastructure firm Indus Towers from the UK's Vodafone Group for INR23.88 billion. The transaction will be executed at a price of INR187.88 per share. The deal had been agreed in February this year on the condition that the proceeds would be invested in Vodafone Idea (Vi) and go towards clearing the latter's dues towards Indus. For its part, Vi's shareholders have approved a proposal to raise INR145 billion through the issue of equity shares to promoter groups Vodafone and Aditya Birla Group (for a total of INR45 billion) and the sale of equity or via a mixture of ADR American Depositary Receipts (ADRs), Global Depositary Receipts (GDRs) and foreign currency convertible bonds (FCCBs) – for the remaining INR100 billion. Under the fundraising program, Vodafone will infuse up to INR33.75 billion in Vi whilst Aditya Birla will invest around INR11.25 billion.

# NBTC Committee Calls for Halt to True, dtac Merger

A planned merger of True Corp and dtac ran into an unexpected obstacle, with the supervisory committee of the regulator urging the body to block the tie-up, which would create an operator controlling more than half of the country's mobile connections, Nikkei Asia reported. The so-called super board, which oversees the National Broadcasting and Telecommunications Commission (NBTC), submitted a letter to the watchdog's head highlighting competitive concerns and suggesting the merger be halted, the news agency wrote. Bangkok Post reported an extraordinary House committee is also studying the impact of the merger, with its findings due to be released by end-April. The proposed tie-up

was announced in November 2021 and was expected to receive speedy approval by regulators. Insiders reckoned the country's largest private company Charoen Pokphand Group, which owns True, was unlikely to face resistance despite concerns. Somkiat Tangkitvanich, President of the Thailand Development Research Institute, in December 2021 accused the regulator of "failing to do its job" by not opposing the deal. Last week the operators announced they would hold a joint shareholders' meeting on 4 April. The boards of both companies approved the deal in mid-February, when they filed a merger notification with the regulator. They expected the merger to close by September.

# Optus Urges ACCC to Block TPG-Telstra Network Sharing Agreement

Optus has reportedly called on the Australian Competition and Consumer Commission (ACCC) to block the network sharing agreement announced by rivals Telstra and TPG Telecom last month, claiming it has the potential to create a 5G monopoly in regional areas. According to the Sydney Morning Herald, Optus has argued that the agreement between Telstra and TPG not only highlights the latter's lack of interest in investing in regional Australia but also allows Telstra to bypass competition rules that restrict its ability to obtain access to valuable 5G spectrum. Andrew Sheridan, Optus' vice president of regulatory and public affairs, was cited as saying of the matter: 'The partnership overturns 30 years of competition policy by eliminating one of Telstra's competitors

and seriously placing Telstra's main competitor, Optus, at a disadvantage … We believe the ACCC should consider consumers' best interests in their decision and block this arrangement for the benefit of regional Australians.' In February 2022 Telstra and TPG announced what they called a 'ground-breaking ten-year regional Multi-Operator Core Network (MOCN) commercial agreement'. Under the deal TPG will be able to utilise around 3,700 of Telstra's mobile network assets, while in return Telstra will gain access to TPG Telecom's spectrum. In addition, Telstra will share its RAN for 4G, and subsequently 5G, in the defined coverage zone, though both companies will continue to operate their own core network. Telstra will also obtain access to and deploy infrastructure on up to 169 TPG Telecom existing mobile sites, improving coverage for both parties' customers in the zone. TPG will continue to operate its own 3G, 4G and 5G networks in metropolitan areas, reaching around 80% of the population – bolstered by its network infrastructure sharing arrangement with Optus in those areas. TPG will, however, decommission the 725 mobile sites it currently operates within the MOCN coverage area with a view to 'reducing environmental impact, energy consumption, operating costs and future CAPEX'.

# New Mobile Operator Exercises Option for Reserved Spectrum

Telecoms regulator the Belgian Institute for Postal Services and Telecommunications (BIPT) has announced that one of the two unnamed newcomers which have qualified to participate in June's spectrum auction has exercised the option to obtain a reserved radio spectrum package in the various frequency bands for both 5G and 2G, 3G and 4G applications against payment of EUR83.34 million (USD91.44 million). The package, comprising a total of 2×30MHz spectrum in the 700MHz, 900MHz, 1800MHz and 2100MHz bands, is intended to provide the new operator with sufficient frequency resources to enter the market as a fully-fledged mobile player. The three existing MNOs – Orange Belgium, Proximus and Telenet – have also exercised the option

to obtain the radio spectrum reserved for them against payment of EUR73 million each, thereby ensuring continuity of their current mobile services. Each operator will be assigned one 5MHz duplex block in the 880MHz-915MHz/925MHz-960MHz range, three lots of 2×5MHz in the 1710MHz-1785MHz/1805MHz-1880MHz range and two 5MHz duplex frequency blocks in the 1920MHz-1980MHz/2110MHz-2170MHz band. In addition to the reserved spectrum, the existing operators and the newcomers will have the possibility to bid on the remaining lots in the auction for which they are a candidate, totaling 640MHz for a minimal amount of EUR477 million.

# A SNAPSHOT OF REGULATORY ACTIVITIES IN THE SAMENA REGION

## Algeria

Algeria is in the process of clearing and optimizing radio frequencies to be used for 5G as it prepares for a widespread launch of the technology "soon", according to Telecoms Minister Karim Bibi Triki. The Minister said that Algeria's government has previously been focused on improving subpar 4G coverage and service quality, but in the face of increasing demand for broadband connectivity the launch of commercial 5G is now being seriously considered - possibly even before the end of 2022. Traffic has surged in Algeria since 2020 as a result of the pandemic, prompting operators to boost capacity on their networks – in many cases by deploying 5G-ready technology. Several operators have formed vendor partnerships for the deployment of 5G-ready technology, with state operator Mobilis choosing Huawei, Djezzy selecting Nokia, and Ooredoo opting for Ericsson. As reported by CommsUpdate, during 2021 Algeria's operators pressured the government to lay out its 5G strategy so that they could plan their investments in the technology. The state owns 200,000km of fiber optic cable which will be used to facilitate the introduction of 5G in Algeria.

(March 21, 2022) developingtelecoms.com

## Bahrain

Bahrain's Telecommunications Regulatory Authority (TRA) has issued a decision on pricing and other terms for Batelco's international connectivity services. The body noted the determination aims to ensure an efficient international connectivity market, as well as encourage and enable telecoms companies to invest in international cable routes that land in Bahrain. In response to concerns raised by licensees, the TRA undertook a market review of international connectivity which highlighted, among other things, Batelco's control of access to three of the four submarine cables landing in the country, as well as the high prices that licensed operators pay for international connectivity services in Bahrain compared to other countries. As a result of the review, the TRA has imposed new regulatory measures on Batelco including price regulation that will enable Bahrain to compete more effectively with neighboring states, by making it more appealing to users of services that rely on international connectivity. Commenting on the decision, TRA Bahrain General Director Philip Marnick said: 'The Authority believes that this price regulation will permit Batelco to make a reasonable return on existing investments while allowing both them and other operators to invest in new international connectivity services in the future … The Authority believes that these price terms will eliminate any potential barriers to service entry and will allow telecoms and data service providers to provide their consumers with resilient services at competitive prices.'

(April 1, 2022) commsupdate.com

The Information & eGovernment Authority (iGA) highlighted some of the Kingdom's digital transformation successes at the recent World Government Summit 2022 held on the sidelines of Expo 2020 Dubai. The iGA delegation was led by Chief Executive Mohammed Ali Al Qaed and included Deputy CE for Electronic Transformation, Dr. Zakariya Ahmed Alkhaja, Hesham Al Hashemi, iGA Government Systems Support & Maintenance Director, Abdulla Al Jowder eService & Channel Development Director, Ahmed Ibrahim Al Arabi, Chief, Strategic Planning, and Chief, IT Policies & Standard, Ibrahim Yousef Al Mahmoud. They participated in sessions and workshops on advanced infrastructure and ICT capacity and skills-building, among other topics. Al Qaed took part in an Arab Government Administration Forum, entitled 'Are We Ready for the Digital Leap?' during which he highlighted the many factors that contributed to Bahrain's successful digital transformation , which benefits from a clear strategic vision, and set of policies and standards, as well as the support of the Kingdom's senior leadership, represented by His Majesty King Hamad bin Isa Al Khalifa, and His Royal Highness the Crown Prince and Prime Minister, Prince Salman bin Hamad Al Khalifa. The Kingdom also provides a comprehensive framework for IT governance and digital transformation through the Supreme Council for Information and Communications Technology, chaired by Deputy Prime Minister, His Highness Shaikh Mohammed bin Mubarak Al Khalifa. Al Qaed said that the Kingdom has automated judicial processes and procedures, with more than 93% of the sector being digitized. 100 percent of court session records have been converted from paper to digital. The annual settlement rates for cases have also improved. This

is in addition to the establishment of four government agencies directly on Cloud computing platforms. The transfer of more than 70% of government operations to the Cloud has helped to reduce operating costs and the time needed for government projects by 60 to 80%. He highlighted the role of the Bahrain Open Data Portal, which provides data to investors in a range of sectors, including

IT. He said that Bahrain is partnering with the private sector to invest in further developing its Cloud computing capabilities. Instead of focusing on physical infrastructure, this is freeing up resources for the Kingdom to improve skills and competencies, and optimizing the use of resources.

(March 31, 2022) tradearabia.com

# Bangladesh

Operators in Bangladesh spent around BDT106.4 billion ($1.2 billion) to secure spectrum in the 2.3GHz and 2.6GHz bands as they seek to improve existing 4G services and prepare the way for 5G networks. The Bangladesh Telecommunications Regulatory Commission (BRTC) auctioned ten 10MHz blocks in the 2.3GHz band and 12 10MHz blocks in the 2.6GHz band. Around 30MHz remained unsold. Grameenphone and Robi Axiata each acquired the maximum amount of 60MHz in the 2.6GHz band. The Business Standard reported the operators both paid around BDT33.6 billion for the frequencies. State-owned operator Teletalk acquired 30MHz and Banglalink 40MHz in the 2.3GHz band, with the former paying around BDT16.8 billion and the latter around BDT22.4 billion. The spectrum licenses have 15-year terms, with operators required to pay 10 per cent within 60 days and the remainder in equal instalments over nine years. Grameenphone increased its total spectrum assets to 107.4MHz, while Robi Axiata now has 104MHz, Banglalink 80MHz and Teletalk 55.2MHz. The Business Standard quoted Grameenphone CEO Yasir Azman as noting while 4G technology will continue to be the primary technology in Bangladesh, the operators will work with the government to identify relevant 5G use cases for trials in the coming months. Only last year, the four operators spent $898.2 million to secure spectrum in the 1800MHz and 2100MHz bands to expand their limited 4G holdings. In December 2021, Huawei and Nokia partnered Teletalk for the deployment of the nation's first 5G network in limited areas of Dhaka. (April 1, 2022) mobileworldlive.com

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(March 31, 2022) mobileworldlive.com

The Bangladesh Telecommunication Regulatory Commission (BTRC) has selected Rohde & Schwarz mobile network testing solutions to assess and benchmark the performance, coverage and capacity of the country's mobile network operators. With the goal of improving the quality of service (QoS) and quality of experience (QoE) for end users, the test equipment allows BTRC officials to follow an internationally standardized and fully transparent process based on the European Telecommunications Standards Institute (ETSI). A huge increase in network traffic and demand has impacted the QoS and QoE of certain service providers in Bangladesh. To keep subscribers satisfied and encourage network operators to invest in their infrastructure, the Bangladesh Telecommunication Regulatory Commission has initiated a campaign to transparently benchmark and assess operator performance. BTRC has selected Rohde & Schwarz for the installation, commissioning and supply of the mobile network benchmarking system. The contract includes modular Benchmarker II systems to be set up in vehicles and R&S Freerider 4 backpacks for in-field data collection. In addition, the SmartMonitor solution supports remote data collection management and visualization, and SmartAnalytics provides deep data analytics and reporting based on the QoE centric network performance score (NPS). Rohde & Schwarz, with its portfolio of network benchmarking solutions, coined the NPS, a methodology ratified by ETSI and documented in ETSI TR 103 559 to characterize the overall network performance for a defined key performance indicator (KPI). Dr. Shamsuzzoha, Deputy Director of BTRC, says, "We are confident that the Rohde & Schwarz products, solutions and services will give us valuable insights into the performance of each mobile network operator and increase the overall mobile network quality in Bangladesh."

(March 3, 2022) vanillaplus.com

# Egypt

The Minister of International Cooperation Rania Al-Mashat and the Minister of Communications and Information Technology Amr Talaat have launched the United Nations Joint Team for Digital Transformation and Innovation (UN-JTDI) initiative, in cooperation with the United Nations (UN). The initiative was launched during the First Joint Government of Egypt-UN Ideation Workshop on Technology and Innovation, in the presence of the UN Resident Coordinator in Egypt Elena Panova, and the Director, Regional Office of the International Telecommunication Union (ITU) for the Arab States Adel Darwish, with the participation of representatives of 18 UN agencies and nine ministries. In her remarks, Al-Mashat stated that technology and innovation are key pillars for achieving 2030 Sustainable Development Goals (SDGs). She added that modern technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), Virtual Reality (VR) and Blockchain play a vital role in all development aspects, including eradicating poverty, promoting sustainable agriculture, ensuring food security, combating the spread of diseases and epidemics, improving the quality of education, accelerating the transition to green economy, increasing productivity, raising the competitiveness of the private sector, developing smart cities, and others. For his part, the ICT Minister highlighted that the initiative is aimed at encouraging partnership with the Egyptian government and the private sector to enhance the technology and innovation pillar as one of the main pillars to achieve 2030 SDGs at national, regional, and international levels. He pointed out that the innovation and entrepreneurship pillar has been serving the pillars of digital transformation and human capacity building in the strategy of the Ministry of Communications and Information Technology (MCIT), seeking to encourage research and development (R&D), creativity and entrepreneurship in ICT. Since 2010, MCIT has been eager to develop creative solutions and innovative ideas with a tangible impact on the national level to transform Egypt into a leading regional and global hub for entrepreneurship and innovation. This helped the country rank first in Africa in terms of the number of investment and venture capital deals in Egyptian startups in 2021, according to Egypt Venture Investment Report by MAGNiTT. (April 11, 2022) mcit.gov.eg

The National Telecommunications Regulatory Authority of Egypt (NTRA) signed a Memorandum of Understanding with the Saudi Communication and Information Technology Commission (CITC) to cooperate and exchange expertise with regard to many topics such as; smart cities, management of radio spectrum as well as building capacities in digital transformation. The MoU was signed in line with reinforcing international cooperation between the Arab Republic of Egypt and the Kingdom of Saudi Arabia, with respect to telecom regulation. The MoU was also signed in conjunction with State's policy to uphold the process of digital transformation and improve the services related to such a process. It copes as well with the State's effort to reinforce the competitive environment of investments in Egypt's telecom market. The MoU articles stipulate coordination with regard to many technical arenas pertaining to communications and information technology. The articles also entail the exchange of expertise with respect to radio spectrum management, numbering and service-quality. Furthermore, both parties agreed as per the MoU to exchange expertise and knowledge to achieve the mutual interests of both countries at the regional and international levels. They also reached an understanding with respect to the main features as well as mechanisms to enforce the MoU, which entail the provision of consulting services in the fields of human resources management and development, alongside strategic planning. They also agreed on the mechanisms to coordinate joint events such as; meetings and conferences, and to design training programs and workshops for both sides. The MoU was signed by Engineer Hossam El-Gamal, the Executive President of NTRA, and Dr. Mohammed Al-Tamimi, the Governor of CITC, in the presence of Ambassador Ahmed Ihab Gamaleldin, the Permanent Representative of Egypt to the United Nations, and Ambassador Abdul Aziz Al-Wasel, Saudi Arabia's Permanent Representative to the United Nations. It was actually signed on margin of the World Telecommunication Standardization Assembly (WTSA) held under the umbrella of the International Telecommunication Union (ITU) with the participation of 140 countries.

(March 4, 2022) tra.gov.eg

# Iran

Iranian telcos MTN Irancell and Telecommunication Company of Iran (TCI) have spoken out against the government's plan to impose a further 2% tax on operator revenues, which they say would hinder the development of the sector. ICTNA cites Irancell

CEO Bijan Abbasi Arend as saying that the government move is 'legally doubtful', while it would also divert funds away from the construction and upgrade of network infrastructure.

(March 14, 2022) commsupdate.com

# Jordan

Telecommunications Regulatory Commission (TRC) posted on its website the statistical report on Jordan's telecom sector indicators for the last quarter of 2021, related to landline subscriptions, mobile and broadband internet services. According to the TRC report, the total number of landline services subscribers until the end of the 2021 fourth quarter reached a total of 278, 000-185K for household purpose, and a total of 93k for commercial goals. The total mobile phone subscriptions amounted to 7.275

million until the end of the last quarter 2021, the TRC added. Mobile subscriptions as a percentage of the total adult population reached 102.74 per cent by the end of the fourth quarter, while mobile subscriptions as a percentage of the population hit 65.7 per cent, the TRC figures revealed. Internet broadband subscriptions stood at 329,700 fiber subscriptions in the 4th quarter of 2021, the TRC data showed.

(March 10, 2022) petra.gov.jo

# Nepal

The Nepal Telecommunications Authority (NTA) has ordered ISPs to call a halt to their price war in the high speed fixed broadband market. At a meeting with representatives of the Internet Service Providers' Association of Nepal (ISPAN) held on 4 April, the regulator issued a warning about what it described as 'arbitrary' tariffs and an 'unnecessary' price war, reminding the companies of their obligation to obtain tariff approval before launching any new packages. In an effort to address service providers' concerns, meanwhile, the regulator agreed to form a sub-committee to resolve short and long-term issues hindering the sector. Following the launch of CG Net's aggressively priced 120Mbps connection in June 2021, rival ISPs responded with their own price cuts and speed upgrades, including the introduction of 1Gbps accesses in January of this year. However, customers frequently complain their fixed broadband services do not deliver the advertised speeds and are unstable. (April 11, 2022) Nepalitelecom.com

Telecom authority NTA is prepared to inspect WiFi performance and has shortlisted 5 consultants. The project will assess the quality of WiFi performance in public areas as offered by ISPs for free. The assessment will comply with the WiFi Hotspots Operations Regulation. And those who fail on NTA's parameters

for public WiFi service will be subject to necessary actions. To conduct the project, Nta has shortlisted 5 consultant firms. However, this is only the first round of the selection procedure. In the final phase, Nta will assess consultants' proposals before selecting one for the study. The selected consultants (companies) are – Green Tick Nepal, Malakai Mekhi Technology and Suppliers, Inclusive Everest, Synergy JV, and Tangent Consultant Group and Suppliers. Now, NTA will seek financial and technical proposals from each company. Then the authority will select one in the last phase of the selection procedure. The company will then investigate public WiFi hotspots' performance standards and submit the report to NTA. NTA says that the consultant will inspect the performance standards of public WiFis as per the WiFi Hotspot Operation Regulation. In addition, those who fail to meet the standards will be subject to necessary actions. Many service providers offer free public WiFi for people benefitting them with connectivity on the go. It is a generous offer for the public who gets to browse social media, share posts, pictures, and videos where WiFi is available. But if the available network is poor, it rather affords a painful experience for many. the telecom authority wants to ensure it is not the case.

(April 3, 2022) nepalitelecom.com

# Oman

The Telecommunications Regulatory Authority's (TRA) survey on the satisfaction of users of fixed telecommunication services has revealed that 70 per cent of people in Oman are satisfied with the fixed-line telecommunications services, while 52 per cent of them are not satisfied with the prices of fixed-line Internet services. The statistics showed that 65.4 per cent of the participants agreed that the quality of service – in general – provided by the service provider is always excellent, and that 84.5 per cent of

the respondents agreed that the branch offices of their service providers are located in appropriate places. While 74.2 per cent of participants said that their service provider takes an active role in solving users' problems, 86 per cent agreed that their service provider is always ready to help. As for the results of the 'Satisfaction of Mobile Telecommunication Services Beneficiaries survey, 73 per cent of individuals in Oman are satisfied with the mobile telecommunication services, while 45 per cent of them are

not happy with the prices of mobile Internet services in general. The results showed that 50 per cent Omanis and 90 per cent of expatriates agree that the service quality in general is excellent. The governorates of North Sharqiyah had the highest percentage of dissatisfaction with the prices of mobile Internet services at 62 per cent, followed by 50 per cent each in the governorates of Dhofar and Dhahirah. TRA stated that the two surveys aimed to provide statistical indicators about the satisfaction of users of fixed and mobile telecommunication services which contributes to the formulation of legislative and regulatory frameworks.

(April 10, 2022) muscatdaily.com

Eng. Omar Hamdan al-Ismaili, CEO of Telecommunications Regulatory Authority (TRA) visited Al-Mazunah Free Zone (MFZ) to explore challenges of telecom services facing the investors in the free zone. During the visit, al-Ismaili was accompanied by officials from TRA and representatives of telecom service providers in the Sultanate. The delegation was briefed on the MFZ, the ongoing and upcoming projects and the status of telecom services in the free zone, which are provided by the service providers including Omantel, Ooredoo, and Oman Broadband.

(March 14, 2022) omannews.gov.om

# Pakistan

In pursuance to the Policy Directive issued by Federal Government, Pakistan Mobile Communications Limited (Jazz) has signed renewed license with Pakistan Telecommunication Authority (PTA). The license is renewed for a fee of USD 486.2 Million for 15 years, out of which 50% of the amount i.e. Rs. 44.54 Billion (equivalent to USD 243.1 million) has been deposited by Jazz and the remaining amount will be paid in 5 equal annual installments along with applicable markup. Renewed license has enhanced terms and conditions for coverage and Quality of Service. The license renewal ceremony, held at PTA today, was attended by Federal Secretary for IT & Telecommunication, Dr. Muhammad Sohail Rajput; Chairman PTA, Maj. General Amir Azeem Bajwa (R); Member Compliance & Enforcement (PTA), Dr. Khawar Siddique Khokhar and senior management of PMCL (Jazz), PTA, MOIT & FAB. (April 12, 2022) pta.gov.pk

To curb pornographic/indecent content as defined in Prevention of Electronic Crimes Act (PECA 2016) Section 37, Pakistan Telecommunication Authority (PTA) has implemented Central Domain Name System (C-DNS) policy enforcement mechanism to ensure the automated effective and seamless blocking of unlawful content in real-time. The Authority inaugurated the mechanism at PTA Headquarters, Islamabad. The C-DNS mechanism was developed with months of joint efforts and close coordination with the telecom industry and other stakeholders.

(April 12, 2022) pta.gov.pk

Chairman PTA, Maj. Gen. (R) Amir Azeem Bajwa held meetings with Director of ITU Telecommunication Development Bureau (BDT) and Chairman of the Malaysian Communications and Multimedia Commission (MCMC) at the GSMA Mobile World Congress 2022 in Barcelona. The Chairman also signed a cooperation agreement with Alliance for Affordable Internet (A4AI), World Wide Web Foundation to address digital gender gap in Pakistan. The Chairman briefed the ITU Director, Ms. Doreen Bogdan-Martin and Chairman (MCMC) about PTA's efforts on digital inclusion of women and girls in ICTs through series of agreements with national and international stakeholders. During Chairman PTA's discussion with Chairman (MCMC) Dr. Fadhlullah

Suhaimi Abdul Malek; both sides discussed the challenges associated with regulation of the Over-the-top (OTT) platforms in their respective countries. Moreover, a cooperation agreement was signed by Chairman PTA and Executive Director, A4AI Ms. Sonia Jorge. Under this collaboration, PTA will be working towards bridging the digital divide in Pakistan by making use of A4AI's policy and regulatory good practices and resources. PTA and A4AI will conduct a series of gender-responsive workshops in Pakistan to promote awareness around gender mainstreaming in ICTs and enhance the understanding of key stakeholders to tackle the digital gender divide in Pakistan. This agreement will further strengthen PTA's commitment to make women an integral part of the digital transformation process in Pakistan.

(March 4, 2022) pta.gov.pk

According to the Pakistan Telecommunication Authority, the number of 3G and 4G user in Pakistan increased by 1.52 million from 107.68 million in December 2021 to 109.72 million in January 2022. (PTA). Pakistan's 3G and 4G user base climbed by 1.8 million to 190.51 million at the end of January 2022, up from 188.71 million at the end of December 2021. The cellular mobile teledensity grew from 85.94 percent in December 2021 to 86.71 percent in January 2022. By the end of January, the overall teledensity had risen from 87.08 percent to 87.85 percent. By the end of January, the monthly penetration of Next Generation Mobile Services (NGMS) was 49.94 percent, up from 49.04 percent at the end of December. Jazz's overall count for 3G customers remained at 6.712 million by end January compared to 6.809 million by end December, marking a fall of 0.097 million. The number of Jazz 4G users increased from 34.750 million at the end of December to 35.324 million at the end of January. Zong's 3G customers fell from 3.650 million at the end of December to 3.561 million at the end of January, while 4G users increased from 26.389 million at the end of December to 26.953 million at the end of January. Telenor's 3G users fell from 4.090 million at the end of December to 3.994 million at the end of January. By the end of January, the number of 4G customers had risen from 19.824 million to 20.385 million. By the end of January, there were 3.877 million Ufone 3G users, up from 3.871 million at the end of December. Ufone's 4G

customers climbed from 7.112 million at the end of December to 7.653 million at the end of January. (March 3, 2022) phoneworld.com.pk

According to data revealed by the Pakistan Telecommunication Authority (PTA), the telecom industry's investment, Foreign Direct Investment (FDI) and contribution to the national exchequer declined by four per cent, 26 per cent, and 23 per cent, respectively, during 2020-21 compared to 2019-20. However, the telecom industry revenues increased by around nine per cent as it jumped from Rs590.301 billion in 2019-20 to Rs644 billion in 2020-21. Telecom Industry Revenues Increased By 9% in 2020-21- PTA

- Investment by the telecom industry witnessed a decline of around four per cent and remained $1.093 billion in 2020-21 compared to $1.128 billion in 2019-20.
- Investment by Cellular Mobile Operators (CMOs) remained $667.7 million in 2020-21 compared to $568.7 million in 2019-20, $362.9 million in 2018-19, and $562.4 million in 2017-18.
- Class Value Added Services (CVAS)/FLL investment stood at $245.5 million in 2020-21 compared to $231.8 in 2019-20, $167.2 million in 2018-19 and $130 million in 2017-18.
- Long-Distance and International (LDI) investment stood at $31.3 million in 2020-21 compared to $74.6 million in 2019-20, $30.6 million in 2018-19 and $24.8 million in 2017-18.
- Telecom Infrastructure Provider (TTP/TIP) investment stood at

$139.4 million in 2020-21 compared to $253.7 million in 2019-20, $117.1 million in 2018-19 and $143.6 million in 2017-18. The FDI inflow in the telecom sector during 2020-21 was $202.34 million, the outflow was $167.5 million and the net inflow was $34.8 million compared to an inflow of $763.3 million, the outflow of $140.8 million and a net inflow of $622.5 million in 2019-20. Telecom sector contribution to the national exchequer declined by around 23 per cent in 2020-21, remaining Rs225.80 billion compared to Rs290.12 billion in 2019-20. The GST from the telecom sector remained Rs67.4 billion in 2020-21 compared to 47.79 billion in 2019-20. The PTA deposits remained Rs44.84 billion in 2020-21 compared to Rs141.23 billion in 2019-20. Others (WHT, income taxes, customs duty, and other taxes) contributed Rs116.23 billion in 2020-21 compared to Rs101.10 billion in 2019-20. The GST from cellular increased from Rs28.398 billion in 2019-20 to Rs44.530 billion in 2020-21, from the CVAS increased from Rs12.194 billion in 2019-20 to Rs13.178 billion, from LDI decreased from Rs1.928 billion to Rs1.614 billion, from TTP/TIP decreased from Rs5.273 billion to Rs3.408 billion respectively. Among other taxes, from cellular, it increased from Rs85.49 billion in 2019-20 to Rs97.666 billion in 2020-21, from CVAS increased from Rs7.514 billion to Rs7.920 billion from LDI increased from Rs3.2 billion to Rs3.7 billion from TTP/TIP decreased from Rs4.7 billion to Rs4.6 billion respectively. (March 1, 2022) phoneworld.com.pk

# Qatar

The Communications Regulatory Authority (CRA) marks World Consumer Rights Day (WCRD), celebrated annually on March 15, by holding a public outreach event. This event is one of the CRA's initiatives in the field of telecom consumers' protection in the State of Qatar. Through this event, CRA aims to engage directly with consumers to raise awareness about their rights and obligations related to their use of telecom services. The event will include awareness activities for adults and kids. Also, CRA's specialized team will raise awareness about various topics related to telecom services like internet safety for kids, scam calls and messages, international roaming, terms and conditions, and credit limit. Also, during the event consumers will know more about CRA's complaint process and will be able to raise their inquiries and complaints about telecom services. (March 17, 2022) cra.gov.qa

The Communications Regulatory Authority (CRA) participates in the World Telecommunication Standardization Assembly 2020 (WTSA-20), which is organized by the International Telecommunication Union (ITU) in Geneva, Switzerland, from March 1-9, 2022. WTSA is a major event for the ITU and is held every four years, it sets the overall direction and structure for the Telecommunication Standardization Sector (ITU-T), which is one of the ITU's key sectors and its main products are Recommendations (ITU-T Recs) – standards, defining how telecommunication networks operate and interwork. Additionally, WTSA defines the general policy for the Sector, establishes related

study groups, approves their expected work program for the next four-year period, and appoints their chairmen and vice-chairmen. The CRA participates in WTSA-20 in line with its keenness to participate in standards development, exchange views, and stay informed of the general policy for the ITU-T Sector and the latest standard recommendations related to the Information and Communications Technology (ICT) field. The CRA is keen to develop regulations that are in line with the best international standards in the field, to ensure supporting technological innovation, accelerating sustainable digital transformation in the State of Qatar, and that consumers in Qatar have the best experience with telecom services. (March 8, 2022) cra.gov.qa

The Communications Regulatory Authority (CRA) participates in the Mobile World Congress (MWC) 2022, which is the world's largest mobile industry gathering and organized by the Global System for Mobile Communications Association (GSMA) in Barcelona, Spain, from February 28 - March 3, 2022, under the theme "Connectivity Unleashed". The CRA ensures the development of the Information and Communications Technology (ICT) sector in Qatar by developing flexible regulations that can accommodate current and future technological developments, therefore it ensures participating annually in the MWC, as it is an opportunity to exchange ideas and experiences and to explore the latest technologies, in addition to reviewing the latest global developments and trends, and international best practices in

the field. The MWC 2022 brings together largest companies in the mobile industry, telecom service providers, regulators, policymakers, decision-makers, and experts in the field from more than 180 countries around the world. The four-day event includes several sessions related to various topics such as the Fifth Generation (5G) technology, cloud services, the Internet of things (IoT), innovation ecosystems, and other topics. Also, it includes an exhibition that has more than 1,800 exhibitors showcasing

the latest and most innovative products and technologies in the mobile industry. The MWC also includes a ministerial program that brings together ministers, technology experts, and industry executives from around the world to debate related issues. Additionally, on the sidelines of the MWC, the winners of the Global Mobile (GLOMO) Awards will be announced in a virtual ceremony, the GLOMO honors the most innovative and brilliant amongst the mobile and digital industry. (March 2, 2022) cra.gov.qa

# Saudi Arabia

Governor of Communications and Information Technology Commission (CITC) Mohammed Al-Tamimi said the Saudi telecommunications market is one of the fastest-growing markets at the level of G20, occupying the sixth place among G20 countries by market value. The advancement was driven by the Vision 2030 incentives and its role in accelerating the pace of growth and innovation. In a speech at the ICT Indicators Forum 2022 in Riyadh, he said that the private sector invested SR2.7 for every one Riyal provided by the government in the field of communications and information technology Al-Tamimi pointed out that this reflects the success of the partnership between the private and public sectors in the field. "The Kingdom has also achieved the highest level of progress and achievement, through the amount of frequency spectrum allocated to mobile communication services globally, thus ranking second among the G20 countries." He highlighted the strength of the infrastructure of the telecommunications sector in the Kingdom, as the average mobile internet speed reached 179.9 Mbps by the end of 2021, an increase of 1,781 percent, while the global average reached 71.3 Mbps. The coverage of the fiber-optic network reached more than of 3.5 million homes, he added. Al-Tamimi also stated that the frequency spectrum allocated to mobile communications services exceeded 1,110 (IMT) MHz, with the percentage of coverage of the Internet of things technology for urban areas reaching 95 percent. The sector is working on adopting innovative experiences, as the first experiment in the world to provide coverage of 5G networks via high-altitude platforms (5G HAPS) was successfully conducted. Moreover, the latest generation of WiFi-6e technologies was launched to become the first country in the world in terms of total frequency spectrum, the governor added. (April 3, 2022) saudigazette.com.sa

The percentage of internet penetration in Saudi Arabia reached more than 98 percent at the end of 2021, according to a new report. The Communications and Information Technology Commission (CITC) released recently its report on the use and penetration of internet in Saudi Arabia (Meqyas) for 2021. Madinah came first in terms of internet penetration with 99.1 percent, followed by Riyadh and Hail with 98.8 percent. The report showed that the purchase of goods and services topped the use of internet in the Kingdom in 2021, with more than 70 percent, followed by the download of programs and applications with around 63 percent, then the download of games, movies and photos with

55.5 percent. According to the report, purchases from local and global shopping websites accounted for 95.2 percent and 51.4 percent, respectively, of the total purchases in 2021. Clothes and shoes were the most purchased goods online, accounting for nearly 83 percent. Google is the most-visited website in the Kingdom, followed by YouTube and Facebook. The average mobile internet speed reached 169.52 megabytes, compared with 97.54 megabytes a year earlier. The average fixed-line internet speed reached 96.36 megabytes, compared with 76.85 megabytes a year earlier. (April 3, 2022) saudigazette.com.sa

Saudi Arabia's Communications and Information Technology Commission (CITC) has extended the deadline for comments on its plans to award 450MHz frequencies for the establishment of broadband specialized networks for enterprises (PMR auction). Interested parties are now asked to comment on coverage obligations, frequency fees and evaluation criteria of applicants by 7 April 2022; the deadline for spectrum applications is currently slated for 19 May. Under the CITC's plan, a total of 2×5MHz of spectrum in the 450MHz band will be assigned (451MHz-456MHz/461MHz-466MHz); the license will be valid for 20 years (from 2023 to 2043) and will be subject to an annual license fee of SAR9 million (USD2.4 million). (March 18, 2022) commsupdate.com

The Communications and Information Technology Commission (CITC) has renewed its call to the public for their input on its Digital Content Planforms Regulation draft document. After completing its research and analysis in the first public consultation round to solicit feedback, CITC has added the analysis results to an updated version of the draft document. Through this request, the Commission seeks to raise the level of regulatory maturity for digital content platforms through a clear and transparent regulatory framework, taking into account the interest of stakeholders and users. The document is part of CITC's initiative to develop its licensing mechanism for Digital Content Platforms in coordination with the General Commission for Audiovisual Media and other relevant authorities. It aims to create a regulatory framework for digital content platforms in line with international practices and support its development. The Commission also seeks to encourage the expansion and growth of media, support entrepreneurs, attract investment and protect users. (March 7, 2022) citc.gov.sa

H.E. the Governor of the Communications and Information Technology Commission, Dr. Mohammed Bin Saud Al-Tamimi, affirmed that the telecommunication sector in KSA is witnessing great stages of development and growth across various sectors with unlimited support from the government, as the sector has been receiving attention by H.R.H the Crown Prince, -May God Protect Him-. During his visit, H.E. praised stc Group's pavilion participating at the Mobile World Congress in Barcelona, for the efforts made by the group in provisioning the ICT sector, as well as the recent initiatives announced by stc of establishing a major digital center for the Middle East and North Africa, which enhances the Kingdom's leadership in the ICT sector. H.E. was briefed on the services provided by stc at the international exhibition. He also met with a number of the group's board of directors and

senior executives, among the Saudi delegates participating at this significant telecommunication and digital venue. stc Group kicked off its participation at the pavilion at MWC22 in Barcelona, in the presence of the Group CEO, Eng. Olayan bin Mohammed Al-Wetaid, while showcasing its investments in strengthening the 5G network to develop the level of experience for individuals and the business sector. stc constantly raises its efficiency and improves the quality of life, as well as develops technologies, most notably cooperation with Robots, connecting ports to the 5G network, applying virtual stadiums, in addition to its efforts in sustainability and stc TV, and finally through signing many agreements with major international companies, majorly Huawei, Nokia, Ericsson and Intel.

(March 2, 2022) samenacouncil.org

# United Arab Emirates

Dubai's Roads and Transport Authority (RTA) has endorsed a digital signature system for contracts and transactions in a safe and secure environment based on a digital signature certificate linked to the digital identity system. The digital signature system has been designed at the highest information security standards approved by Dubai's Telecommunications and Digital Government Regulatory Authority (TDRA). Mohammed Al Mudharreb, CEO of Corporate Technology Support Services Sector, RTA, said, "The digital signature system was launched last year to process and follow-up transactions in a speedy and highly efficient manner. It aims to facilitate the procedures of signing contracts with companies and individuals who have business with RTA. "RTA will steadily add improvements to the system to enable it to meet the needs of the public and match the digitisation drive. The digital signature system fits well with Dubai's Paperless Strategy aimed to have paper-free transactions in future and a full transformation into a paperless government. It will abolish more than a billion pieces of paper used in government transactions each year," added Al Mudharreb. RTA is keen to achieve its mission of delivering pioneering services to various categories to make them happier through capitalizing on high technology and adopting top international practices. Moreover, RTA's strategic objectives also support pioneering efforts to achieve digitization.

(April 13, 2022) mediaoffice.ae

The UAE's Ministry of Industry and Advanced Technology (MoIAT) has added e& (formerly known as Etisalat Group) to its Champions 4.0 Network, the ecosystem of leading local and international companies supporting digital transformation across the UAE's industrial sector. A Memorandum of Understanding (MoU) between the two parties was signed today by Omar Suwaina Al Suwaidi, Under-Secretary of MoIAT, and Masood M Sharif, CEO of Etisalat UAE, on the sidelines of the eighth edition of Dubai's World Government Summit. The MoU signing was witnessed by Dr. Sultan bin Ahmed Al Jaber, Minister of Industry and Advanced Technology, Sarah bint Yousif Al Amiri, Minister of

State for Advanced Technology, Hatem Dowidar, Group CEO, e&, and Khalifa Al Shamsi, CEO of e& life. In addition to delivering a series of events and workshops as part of the Champions Network, e& has pledged to build a platform providing best-in-class telecoms and digital solutions for manufacturers across the UAE. The platform shall cater to a wide range of sectors such as food & beverages, chemicals, metals, machinery, rubber, electrical equipment, pharma and advanced manufacturing. Following a separate MoU signing between the Ministry and IBM earlier this week, e& is the second major conglomerate at the World Government Summit to join the Champions Network, which sees leading local and international companies unite to share best-practice in the deployment of 4IR technologies. The Champions 4.0 Network will also support the creation of 100 "lighthouses" by 2031, while also cultivating the optimum business environment to establish or attract 500 tech companies by the same year. Dr. Al Jaber commented, "We welcome e& to MoIAT's Champions 4.0 Network, and are confident their advanced technological capabilities and extensive experience in will provide an invaluable contribution to the Industry 4.0 program. e& is one of the most important national companies and has added considerably to the development of the country's technological infrastructure over the past decades, and has also made a permanent contribution to the empowerment of the people of the Emirates in the scientific and technical fields. "In line with our leadership's direction, our goal is to advance the industrial sector as a whole, and we have utilized a partnership approach with leading technology companies to expedite it. Through the Champions 4.0 Network, our industry-leading knowledge partners will help our industrial companies adopt the technologies and solutions of the Fourth Industrial Revolution. In doing so, they will enhance production capabilities, global competitiveness and stimulate investment into priority industries and the industries of the future." Al Amiri said, "The Champions 4.0 Network supports small and medium-sized companies in their efforts to adopt advanced technologies into their operations. Through a series of workshops and other

sessions, our champions will showcase successful uses and best practices of 4IR and also advise on the optimum strategies for deployment, and will accelerate the technological transformation of the national industrial sector. "The success of our partner-based approach has seen two champions of industry sign up for our network during World Government Summit, adding to an esteemed panel of Emirati entities including Abu Dhabi National Oil Company (ADNOC), EDGE and Emirates Global Aluminium. "These 4IR-focused initiatives are laying the groundwork for an enabling industrial ecosystem that can boost the capabilities critical to the sustainable socio-economic development of our country." Jassem Mohamed Bu Ataba Al Zaabi, Chairman, e&, said, "We are constantly identifying new collaborative opportunities and seeking strategic partnerships in line with our commitment to enhance value for all our stakeholders and make a positive difference in the community. We are proud to be active contributors to 'Operation 300bn', a significant strategic project that will accelerate the UAE's reputation as a digital transformation hub and boost the country's socio-economic growth. Through our collaboration with the Ministry of Industry and Advanced Technology, businesses will benefit from the value we are delivering through an engaging business environment that thrives on innovation. "I would like to thank the UAE leadership for their continuous support in encouraging the adoption of advanced technology in industrial ecosystems, progressing next-generation connectivity and introducing cutting-edge technologies. By joining the Industry 4.0 Champions Network and leveraging our advanced capabilities in 5G and IoT, we are collectively accelerating digital transformation in the industrial sector and creating a rich SME ecosystem that will drive continued growth and success for businesses. In signing up for the Champions 4.0 Network, e& will be joining the likes of ADNOC (Abu Dhabi National Oil Company), EDGE, Honeywell, Unilever, Ericsson, Schneider Electric, Emirates Global Aluminium, Microsoft, CISCO, SAP, AVEVA and Siemens. Launched as part of Projects of the 50 last year, "UAE Industry 4.0" is designed to accelerate the integration of 4IR solutions and applications across the UAE's industrial sector, enhancing the UAE's overall industrial competitiveness, driving down costs, increasing productivity and efficiency, enhancing quality, improving safety and creating new jobs. As a key pillar of the UAE's National Strategy for Industry and Advanced Technology, which aims to transform the industrial sector into a long-term engine of economic growth, UAE Industry 4.0 aims to increase industrial productivity by 30 percent and add AED25 billion to the national GDP. (March 30, 2022) wam.ae

The UAE, represented by the Telecommunications and Digital Government Regulatory Authority (TDRA), participated in the 2022 Session of the ITU Council at the ITU headquarters in Geneva. Majed Sultan al-Mesmar, Director-General of the TDRA, headed the TDRA's delegation while Saif bin Ghelaita, Executive Director of the Technology Development Affairs Department at the TDRA, chaired the council's meeting, in its session this year. Bin Ghelaita won the council's presidency in the elections held during the ITU Plenipotentiary Conference in Dubai in 2018. The ITU Council acts as the union's governing body in the interval between plenipotentiary conferences. Its role is to consider broad telecommunication policy issues to ensure that the union's activities, policies and strategies fully respond to today's dynamic, rapidly-changing telecommunications environment. The significance of this session comes from it being the first to be held in person after two years of virtual consultative meetings chaired by the UAE. Participants discussed issues related to the functioning of the ITU Council and topics related to the budget, human resources and action teams, where the results of discussions have been incorporated in the reports submitted to the presidency of the council by the team leaders. The UAE delegation expressed its wish to be renominated for membership in the ITU Council at its forthcoming session in 2023-2026. In that context, al-Mesmar said, "The UAE officially joined the ITU in 1972, only a few months after its founding. Such early joining was a realistic translation of the wise leaders' vision of the importance of the UAE as an active member of key and leading global platforms, at the forefront of which is the ITU, for the UAE to affirm its humanitarian mission and its quest to help the peoples of the world achieve Sustainable Development Goals. My country has not wavered for once in its noble mission... and to that end has put words into action."

(March 29, 2022) wam.ae

# REGULATORY ACTIVITIES BEYOND THE SAMENA REGION

## Australia

A formal consultation on NBN CO's proposed variation to its Special Access Undertaking (SAU) has been delayed by the Australian Competition and Consumer Commission (ACCC) in order to 'provide NBN Co time to address practical issues with the release of information it claims is commercially sensitive'. A proposed variation to the undertaking comes after a series of industry working group meetings conducted by the ACCC in the second half of 2021, in which a range of issues with the regulation under the current undertaking were identified and alternative proposals discussed. Subsequently, NBN Co sent the ACCC a proposed variation to its SAU last month, in which information it considered to be commercially sensitive was redacted. However, according to the ACCC it is essential for there to be a fully transparent and effective public consultation process, and as such it has claimed this requires release of the proposed variation in full. Commenting, ACCC Commissioner Anna Brakey said: 'The ACCC is required by legislation to publish and consult on the variation to the undertaking in full, and proposes to do so as soon as is practical to allow third parties to fully engage in a meaningful consultation process.' To that end, the competition watchdog has said it now aims to publish the full variation, without redactions, no later than 23 May 2022. According to the ACCC, NBN Co's SAU is a 'key part of the future regulation of the National Broadband Network [NBN]', with it setting the terms and conditions for internet providers to access the NBN until 2040, including arrangements for setting maximum prices. (April 14, 2022) commsupdate.com

A joint functional separation undertaking submitted by TPG Telecom Limited on behalf of itself and its various subsidiaries has been accepted by the Australian Competition and Consumer Commission (ACCC). In November 2021 TPG submitted the undertaking to the watchdog which would apply to all local access lines that it controls. With the ACCC having consulted on the matter it has now confirmed its acceptance of TPG's joint functional separation undertaking, noting that this will come into force on 7 October 2022. The undertaking will apply to all local access lines that TPG controls supplying superfast carriage services wholly or principally to residential customers, including its existing fiber-to-the-building (FTTB) and TransACT networks, as well as any new 'superfast' local access lines that TPG might deploy. In the wake of the ACCC's final decision on the matter, local news outlet iTnews cited John Rutherford, TPG Telecom's Group Executive Wholesale, Enterprise and Government, as saying: 'Acceptance of the undertaking provides TPG with greater flexibility to expand its fixed line network footprint and to compete in wholesale and retail markets … This supports our pro-competitive strategy for continued growth in the Australian market … This is a positive result for TPG and provides much needed regulatory certainty to enable further investment into our network.' (April 8, 2022) iTnews

A public inquiry into access to regional mobile towers and the feasibility of providing mobile roaming during natural disasters or other emergencies is to be conducted by the Australian Competition and Consumer Commission (ACCC), at the request of the Australian Government. In a press release regarding the matter, communications minister Paul Fletcher said that the recent '2021 Regional Telecommunications Review' had noted strong progress but highlighted issues that need to be further addressed. 'In that context, we want to make sure that the current settings for providing access to mobile towers are fit-for-purpose,' Minister Fletcher said, adding: 'The ACCC will call for submissions from a range of parties, including the organizations that provide towers and associated infrastructure, and the organizations that use the towers to provide services to Australians.' The inquiry will look at the costs of providing towers and associated infrastructure, including land access, and how these translate into the fee structures for firms interested in accessing towers to provide mobile and other wireless services. It will also look at the factors that are important for industry in deciding whether to invest in towers and provide better mobile coverage. With the ACCC to commence the inquiry by 1 July 2022, it must report within twelve months. As part of the process, the regulator will be required to publish a draft report and seek submissions on that before providing a final report to the Minister. (March 31, 2022) commsupdate.com

Four government agencies in Australia established a regulatory body to collaborate on information sharing to streamline scrutiny of digital platforms and mitigate growing online risks. The Digital Platform Regulators Forum will have representatives from the Australian Communications and Media Authority (ACMA), the Australian Competition and Consumer Commission (ACCC), the Office of the eSafety Commissioner and the Office of the Australian Information Commissioner. In a statement, ACMA explained each agency will work on initiatives related to common issues such as

emerging online consumer harms and encouraging innovation while balancing protections. ACMA chair Nerida O'Loughlin stated the forum is another step in "ensuring Australia is at the forefront in the regulation of the digital environment" and will assist regulators in working more closely together to ensure platforms are up to scratch. In a separate statement, Australian Information Commissioner and Privacy Commissioner Angelene Falk noted the forum aims to "build a ring of regulatory defence" where privacy, competition,

consumer protection, online safety, communications and data issues intersect. Falk added the group is a "targeted and flexible regulatory response" to address the opportunities and risks posed by the expansion of the digital economy. ACCC chair Rod Sims noted it observed harm to competition, consumers and business users in a range of areas since it began examining digital services in 2017.

(March 11, 2022) mobileworldlive.com

## Barbados

Barbados has issued a third telecoms license, as it seeks to break up the long-standing Digicel-Flow duopoly. Clifford Bostic, Director of Digital Infrastructure at the Minister of Industry, Innovation, Science and Technology (MIST). 'We have a third service provider in Barbados that has been licensed, and that is KW Telecommunications Ltd, and they are also preparing for number portability, as well as preparing to launch their services in Barbados.' Both mobile number portability (MNP) and fixed number portability (FNP)

are on course to be introduced this year, he clarified, noting: 'We are learning from the errors and mistakes from all those countries who have implemented number portability, and when we come to the market in mid-2022, you will see both mobile as well as fixed services with number portability.' While little is known about KW Telecommunications – or its backers – the newcomer appears set to fill the void left when debt-wracked Ozone Wireless shut down in August 2019, barely two years after its launch. (March 8, 2022) Barbados Today

## Belarus

The Belarusian Communications and Informatization Minister, Konstantin Shulgan, as saying that his country is 'ready' to deploy 5G technology. 'We've been making preparations by arranging test areas where every mobile carrier had a go at 5G technology. We saw how it erases boundaries between the city and the village in service provision,' he is quoted as saying, noting that national PTO Beltelecom, MTS Belarus and Huawei have 'arranged a test site' in Kopyl District, Minsk Oblast. Shulgan went on to say: 'This technology already allows starting practical work in this direction because the effect of the 5G technology is dozens of times higher than that of the 4G technology'. In June last year, Belarus' national infrastructure operator

Belarusian Cloud Technologies (beCloud) announced the ramping up of its 5G test zones in the country, as it entered the second stage of widescale testing ahead of the commercial launch of the technology. In a press release at the time, the company noted that since 2020 it has been carrying out trials to explore the possibilities of 5G technology and determine the optimal scenarios for its implementation in Belarus. With the tests organized into frequencies in the 2500MHz-2570MHz/2620MHz-2690MHz and 3400MHz-3800MHz bands, between May and December 2020 beCloud began verification of fifth-generation technologies in Minsk and Gomel.

(April 13, 2022) News portal BelTA

## Belgium

Telecoms regulator the Belgian Institute for Postal Services and Telecommunications (BIPT) has allocated exclusive spectrum in the 70GHz/80GHz frequency bands to mobile network operators (MNOs) Telenet, Proximus and Orange Belgium for the use of radio relay links. Following its decision of 30 March 2021 to grant each of the three MNOs provisional user rights to 1GHz of spectrum in the band, the regulator has now extended the allocation for a further twelve months, until 30 March 2023. The BIPT notes the 70GHz/80GHz band could be essential for future 5G backhaul requirements.

(March 31, 2022) commsupdate.com

Telecoms regulator the Belgian Institute for Postal

Services and Telecommunications (BIPT) has announced that five operators have qualified to participate in the long-awaited auction of new 5G and existing 2G and 3G spectrum in the 700MHz, 900MHz, 1400MHz, 1800MHz, 2100MHz and the 3600MHz frequency bands scheduled for June 2022. The names of the candidates were not disclosed, and they will take part in the auction anonymously. The BIPT has confirmed five candidates have been deemed eligible to bid for 900MHz, 1800MHz, 2100MHz frequencies (mostly used for 2G, 3G and 4G applications), the 700MHz, 1400MHz and 3600MHz bands (the first to be used for 5G services), the 3600MHz 5G 'capacity band' and the 700MHz 5G 'coverage band'. Only three

candidacies were submitted and deemed admissible for the 1400MHz band, which is intended to provide additional downlink capacity. The format chosen for the tender is a simultaneous multi-stage auction with bids, which is the same system employed for previous radio spectrum assignments in the country. The winning bidders and details of their spectrum assignments will be made public after the auction.

(March 22, 2022) commsupdate.com

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## Bhutan

Industry watchdog the Bhutan InfoComm and Media Authority (BICMA) has published a consultation paper on the feasibility of the 2300MHz band for 4G services, with a view to improving capacity for mobile broadband services. The paper notes that the frequency range is widely used for 4G in other markets and that there is a good range of mobile devices that are compatible with the band already in circulation in Bhutan. BICMA's proposed frequency plan would see the allocation of 80MHz for TD-LTE, with 10MHz guard bands at the upper and lower end of the range (i.e. 2300MHz-2310MHz and 2390MHz-2400MHz) to minimize interference with Wi-Fi, Bluetooth and amateur radio services. No deadline was stipulated for feedback on the proposals.

(March 22, 2022) commsupdate.com

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## Botswana

The government has unveiled plans to invest around USD12.7 million to connect 500 villages across the country to the internet. The funding will come from the Universal Access and Service Fund (UASF) which uses contributions from telco revenues to improve connectivity in rural areas and in public buildings, such as schools. All villages with a population of at least 5,000 will receive a 4G signal as part of the SmartBots project being run by the Botswana Communications Regulatory Authority (BOCRA), which manages the UASF.

(March 24, 2022) commsupdate.com

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## Brazil

The National Telecommunications Agency (Agencia Nacional de Telecomunicacoes, Anatel) has disclosed plans to stage a 45-day public consultation regarding the suitability of the 4.9GHz band to support 5G technology. In presenting his analysis of the band, Anatel official Moises Queiroz Moreira suggested that the spectrum could be freed up by reducing the amount of spectrum currently used for point-to-point radio links and Public Security and Civil Defence (Seguranca Publica e Defesa Civil, PPDR). The consultation is expected to take place in the second half of 2022.

(April 8, 2022) commsupdate.com

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## Canada

The Canadian Radio-television and Telecommunications Commission (CRTC) has approved Rogers' acquisition of Shaw's broadcasting services, subject to a number of conditions and modifications. The CRTC has also set out several safeguards to ensure that the transaction benefits Canadians and the Canadian broadcasting system. As part of this transaction, Rogers is acquiring 16 cable services based in Western Canada, a national satellite television service and other broadcast and television services. The CRTC's approval only deals with the broadcasting elements of the transaction under the Broadcasting Act. The wider Rogers-Shaw merger deal – agreed in March 2021 – must still gain approvals from Innovation, Science and Economic Development Canada (ISED) under the Radiocommunication Act and the Competition Bureau under the Competition Act. The CRTC has also required Rogers to pay five times more in benefits to the broadcasting system than it had originally proposed. As a result, Rogers will contribute CAD27.2 million (USD21.7 million) to various initiatives and funds, including those that support the production of content by Indigenous producers and members of equity-seeking groups. Benefits will be directed to the Canada Media Fund, the Independent Local News Fund, the Broadcasting Accessibility Fund and the Broadcasting Participation Fund, among others. Rogers must also report annually on its commitments to increase its support for local news, while the CRTC is imposing safeguards to ensure independent programming services are not placed at a disadvantage when negotiating with Rogers. For instance, Rogers must distribute at least 45 independent English and French-language services on each of its cable and satellite services.

(March 25, 2022) commsupdate.com

## Cote d'Ivoire

The Regulatory Authority for Telecommunications in Cote d'Ivoire (Autorite de Regulation des Telecommunications de Cote d'Ivoire, ARTCI) has set out mobile and fixed call termination rates for 2022 and 2023. The per-minute rate dropped from XOF5 to XOF3 at the start of 2022 and will fall further to XOF2 per minute from 1 January 2023. Separately, the regulator has maintained its April 2021 decision on players with significant market power, which identified Orange and MTN in the fixed market, plus Orange, MTN and Moov in the mobile sector.

(March 8, 2022) commsupdate.com

## Czech Republic

In the wake of recent comments made by the European Commission (EC) and the Body of European Regulators for Electronic Communications (BEREC), the Czech Telecommunication Office (Cesky telekomunikacni urad, CTU) has taken a further look at Market No. 3 – the wholesale market for access to mobile services and, based upon this, has opted to open a public consultation on a new draft analysis including a set of temporary measures. At the end of last month, the EC issued a decision requiring the CTU to withdraw its 2021 draft decision relating to wholesale mobile access obligations. Whilst the regulator maintains that MVNOs are not able to offer competitive services due to allegedly unfavorable wholesale access conditions, and proposed to designate O2, T-Mobile and Vodafone as holding significant market power (SMP), and to oblige them to provide national roaming to all, the EC had serious doubts as to the compatibility of the draft measure with EU law and opened an in-depth investigation. Subsequently, on 24 January 2022 BEREC issued its own opinion on the EC's serious doubts, partially supporting the Commission's initial findings. The CTU, however, notes that remedies under national or EU competition law are not sufficient to address what it considers the main issue. 'The Czech Telecommunication Office is a regulatory authority, so I am convinced that prices, which are one of the highest in Europe, must try to influence regulation. The law gives us that opportunity. The Council did not consider it justifiable to ignore it. We hope that the specific proposed regulatory packages will contribute to lower prices on the retail market,' said Hana Tovarkova, chair of the CTO Council. As such, under its temporary measures the CTU still intends to designate the three MNOs as having SMP in this market and, furthermore: 'Proposes to impose two operators' obligations to offer two mobile service regulatory packages in all its existing mobile network access agreements (2G, 3G, 4G and 5G). The regulation of package prices will take the form of a ban on margin squeezes in combination with the setting of a maximum wholesale price for regulated packages. All three mobile network operators will be obliged to allow access on both packages to non-discriminatory conditions, even in the case of newly concluded contractual relations with the MVNO. The regulation will be limited in time to 18 months from the effective date of the corrective measures.'

(March 8, 2022) commsupdate.com

## Estonia

The Consumer Protection and Technical Regulatory Authority (Tarbijakaitse ja Tehnilise Jarelevalve Amet, TTJA) has received four applications for its forthcoming auction of three 3.5GHz licenses for 5G services. As expected, the three incumbent cellcos – Telia, Elisa and Tele2 – have come forward, with the fourth entry coming from Lithuania-based telecoms and media firm Bite Group. Bite Group's activities in Estonia currently center on its TV channel TV3 and streaming platform Go3, so a successful bid for a 5G license would bring additional competition to the country's telecoms sector. Andres Suti, Minister of Enterprise and Information Technology, says having four firms chasing three licenses will be good for consumers: 'I am glad that four companies are interested in the competition, and one of them is a newcomer. This shows that companies have a definite interest in the development of the Estonian communications market and also gives confidence that 5G services will reach the market as soon as possible … Estonian consumers can only win from the competition, because this way the service will be of higher quality and the prices will be more reasonable.' The public tender for three concessions in the 3410MHz-3800MHz range was initially announced on 19 February 2019 and then postponed later that year. Under the new auction terms, the starting price for each license will be EUR1.597 million (USD1.75 million). The TTJA expects to begin the bidding process towards the end of this month and for it to be completed by June. (April 6, 2022) commsupdate.com

## Ethiopia

The Ethiopian Communications Authority has announced infrastructure sharing discussions between Safaricom and state-owned Ethio Telecom have ended, with a launch impending. In a social media post, the authority detailed the two companies were negotiating tower and power-sharing, transmission capacity leasing and interconnection between the two. Discussions seem to have gone well as the ECA said they concluded in "good faith" and agreements have been reached on all pending issues. Safaricom said

on its own social media channel: "These agreements, in addition to our investment and network installation, will be a strong foundation for the services that start this year, for the development of the telecom sector, and for the success of the digital transformation and digital inclusion plan for Ethiopia." Safaricom beat rival MTN to Ethiopia's first private telecoms license in 2021, which is valid for 15 years. (April 17, 2022) developingtelecoms.com

## France

France moved to open up more spectrum frequencies to vertical sectors as part of efforts to accelerate the deployment of industrial 5G use cases in the country. The government and regulator Arcep announced industrial players can apply to access frequencies in the 3.8GHz to 4.0GHz band until the end of 2022. Businesses in sectors including manufacturing, logistics, energy, health, smart city and more will each be able to make use of a 100MHz block in this band for three years to trial different use cases. Arcep stated businesses will have access to a "mature and varied ecosystem of terminals and equipment" because of the band's proximity to the core 5G band (3.4GHz to 3.8GHz). Vertical sectors are already permitted to use frequencies in the 2.6GHz and 26GHz bands in France. Arcep also plans to simplify access to the 2.6GHz TDD band by creating a new portal for applicants. The move to open up more spectrum comes after France unveiled a series of measures to boost industrial 5G in the nation. A report published by Philippe Herbert, president of Mission 5G Industrielle, identified a total of seven reasons why industrial use is dragging its heels in France compared with other European countries. These include poor access to relevant spectrum frequencies, the insufficient availability of suitable equipment and services, difficulty in finding the right skills, and the lack of maturity of French and European industrial 5G ecosystems. (March 16, 2022) mobileworldlive.com

## Germany

The Federal Network Agency (FNA, known locally as Bundesnetzagentur) has published its draft Telecommunications Minimum Requirements Ordinance (TKMV-E) for public consultation with the federal states and market participants. The formulation of the regulations follows the entry into force of the amended Telecommunications Act on 1 December 2021 which outlines the rights of citizens to be supplied with telecoms services, taking into account the European requirements. In addition to voice services, this right also includes an internet access service. The internet access service to be guaranteed within this framework must meet certain technical requirements, and the essential parameters are required to be defined in the form of a statutory order by 1 June 2022. The TKMV-E contains stipulations that shape the right to the provision of telecoms services, including the parameters for the minimum download and upload bandwidths to be made available, as well as the maximum permissible latency. The FNA has invited suggestions from all market participants to be included in the further considerations with a view to drawing up and finalizing the statutory ordinance. The right to be provided with telecoms services also means that the products offered are available at affordable prices, and the FNA has to publish principles for the affordability of universal services six months after the law comes into force and after hearing the parties concerned.
(March 29, 2022) commsupdate.com

The Federal Ministry for Digital Affairs and Transport has presented its Gigabit Strategy to industry stakeholders, with a view to achieving widespread fiber-optic networks and the latest mobile communications standard for wherever people live, work and travel by 2030. The strategy outlines a number of key goals, including the supply of at least half of all German households and businesses with fiber-to-the-home/building (FTTH/B) networks by the end of 2025 and better mobile phone coverage on railway lines. It proposes that building and site permits are simplified, with the possibility of an early start of construction (for the erection of mobile phone masts) before the building permit is granted, the reduction of the separation distances provided for cell towers and a permit waiver for mobile towers and modifications to existing cell towers. It aims to increase acceptance of micro trenching and above-ground laying techniques, which lay fiber-optic cables faster and with less capacity, among municipalities and companies in the construction industry. The Ministry states it is also adapting its funding process and making the subsidy approval process faster and more digital. In order to track the implementation of the gigabit strategy, the Ministry is creating a new federal state secretary committee, which will meet at least four times a year to review the implementation of the gigabit strategy and, where necessary, make adjustments and provide assistance. In addition, it is establishing an institutionalized industry dialogue in order to improve cooperation between the state and the market in accelerating the expansion. The strategy is currently being formulated and is set to be presented to the Cabinet for final approval before the end of the summer. (March 21, 2022) commsupdate.com

## Ghana

Ghana has extended its deadline for citizens to register and link their details to SIM cards, admitting it will not be able to register all SIMs within the original timeframe. In a statement, the Ministry of Communications and Digitalization has said there was a number of factors to not meeting its original March 31 deadline, a key one being people have yet to obtain their national identity cards. The SIM registration order began on October 1 last year but as of March 17 only 14 million SIM cards have been linked to Ghana Cards, and over 7.5 million citizens have yet to obtain their ID cards. The deadline has been extended to July 31. "It is clear that the deadline for completion of the registration of the remaining active SIM cards cannot be met," said minister of communications Ursula Owusu-Ekulful.

The processing for ID cards has been reportedly slow with some citizens waiting for hours in line to process their details. More time is also required to facilitate diplomats and residents that are abroad. "We commend all Ghanaians and foreign residents in Ghana for their support in ensuring that through this exercise, we develop and build a credible SIM database with integrity, which will help address issues of cyber fraud and promote secure SIM Card based transactions as part of our efforts to digitally transform the economy, said Owusu-Ekulful. Ghana's decision to implement a national ID card scheme has seen pushback from citizens concerned with data privacy.

(March 23, 2022) developingtelecoms.com

## Guyana

The Prime Minister Mark Phillips has requested that industry regulator the Public Utilities Commission (PUC) develop a set of quality of service (QoS) benchmarks for operators to abide by, following a string of customer complaints regarding internet services. Local daily Demerara Waves writes that the PM, in a letter to the PUC, asked that the regulator amend the Telecommunications (Consumer) Protection Regulations 2020 to include QoS requirements for availability, packet loss ratio, average throughput, latency and jitter. The PM was quoted as saying in the missive: 'The Government of Guyana is extremely concerned at numerous reports of poor quality of public telecommunication services, especially with respect to fixed and mobile broadband internet services. I am advised that the institution of appropriate technical QoS Standards is a necessary part of the solution to this issue.' (April 12, 2022) commsupdate.com

## Iceland

The telecoms watchdog the Electronic Communications Office of Iceland (ECOI) has extended Vodafone Iceland's (Syn's) 5G concession in the 3600MHz band until 31 March 2023, following a public consultation on the topic in February. According to the terms of the frequency authorization, Syn will embark on an 'extensive' deployment project in the forthcoming twelve months, committing to build 5G networks in ten rural areas of the country (nine of which currently have no 5G access) – covering 90% of the population in these settlements with minimum downlink of 200Mbps – as well as deploy 40 5G transmitters and provide 5G to over 25% of the population. According to the approved plan, 5G networks must be built in six settlements before 31 September 2022.

(March 22, 2022) commsupdate.com

## India

Around a third of base transceiver stations (BTS) in India are connected to fiber networks, reducing the potential footprint of 5G networks when the technology is introduced, the Indian Express writes, citing Telecom Minister Ashwini Vaishnaw. The minister told parliament that 793,551 of the roughly 2.3 million BTS in service as at 1 February 2022 were fiberized, equivalent to around 34.5% of the sites. Fiberization of BTS is an important component for the deployment of 5G networks but service providers in India have faced obstacles in connecting the majority of their sites to fiber. According to the minister, the main barriers have been related to Right of Way (RoW), with providers facing high costs, complex processes and delays due to the failure of state authorities to align RoW rules with those set by the central government. To address the issue, the minister said that the government is creating a collaborative institutional mechanism for the central government, states and local bodies for common RoW, standardization of costs and timelines for approval, and removal of barriers for grant of approvals.

(April 11, 2022) commsupdate.com

Industry watchdog the Telecom Regulatory Authority of India (TRAI) has issued a decision clarifying its recent tariff order regarding pre-paid plans. The updated wording of the regulator's order states that for pre-paid plans that renew automatically on the same date each month, if that renewal date is not available the renewal date should instead be the last date of the month. For

example, if the renewal date is the 31st, in months that have fewer than 31 days the plan should be renewed on the last day of the month. In January this year the TRAI ordered those mobile providers offer at least one Plan Voucher, Special Tariff Voucher and Combo Voucher with validity of 30 days and one Plan Voucher, Special Tariff Voucher and Combo Voucher that is renewable on the same date of each month. The order had followed complaints from lawmakers and consumer advocate groups that the standard 28-day billing period used by most operators did not represent 'monthly' billing, as it resulted in users paying at least 13 bills a year. Further, users complained of the inconvenience of irregular top-ups caused by the 28-day billing period.

(April 1, 2022) commsupdate.com

The Indian government is planning to merge Bharat Broadband Nigam Limited (BBNL) – the special purpose vehicle established by the government for the deployment of a nationwide fiber network (BharatNet) – into state-owned full-service provider Bharat Sanchar Nigam Limited (BSNL), the Economic Times writes, citing a speech from BSNL Chairman PK Purwar. The tie-up would hand the loss-making operator an additional 567,000km of fiber, connecting 185,000 villages nationwide. The paper notes that unnamed BBNL officials questioned the decision, given BSNL's difficulties in completing BharatNet-related projects. The officials also expressed concerns regarding the plan to transfer the network, which was intended to provide non-discriminatory access to all players, to a single provider. In a separate development, meanwhile, the chairman was quoted as saying that BSNL expects revenue of INR170 billion (USD2.24 billion) in the year to 31 March 2022, down slightly from INR174.5 billion in the preceding year. The executive attributed the dip to the loss of interconnect revenues following the elimination of mobile termination charges from 1 January 2021. Mr. Purwar added that the company's 4G launch was on track to take place later this year and dismissed claims that the company would struggle to compete with privately backed cellcos, which are gearing up for a 5G launch in 2023.

(March 21, 2022) commsupdate.com

## Ireland

The Commission for Communications Regulation (ComReg) has published a decision confirming it will extend its COVID-19 temporary licensing framework for what it intends to be a final time. Having earlier this month set out its proposals for a further temporary licensing framework beyond 1 April 2022, it said at the time it saw a need to provide current licensees 'a reasonable period of time to manage an orderly transition … away from the use of COVID-19 temporary spectrum rights'. Having received submissions from eir, Three Ireland, Virgin Media Ireland and Vodafone Ireland in response to its consultation on the plans, it said that having now considered these it was of the opinion that it was indeed appropriate to implement a further temporary licensing framework for frequencies in the 700MHz and 2100MHz bands for a period of up to six months from 1 April 2022.

(March 17, 2022) commsupdate.com

## Italy

The Italian government's Infratel agency has launched tenders worth EUR2 billion (USD2.2 billion) for the rollout of 5G technology in rural areas which will not be covered by the commercial deployments of the country's cellcos. The contracts, which will see the government providing up to 90% of the rollout costs, call for the installation of fiber-optic infrastructure to connect more than 10,000 existing mobile tower sites and the construction of new 5G sites in over 2,000 locations. The government wants the entire country to have access to mobile broadband speeds of at least 150Mbps by 2026. The EUR2 billion funding is on top of the EUR3.7 billion already earmarked to support the upgrade of fixed broadband services across Italy, the EUR600 million set aside to connect schools, and the EUR45 million allocated to reach smaller islands.

(March 23, 2022) commsupdate.com

## Japan

According to local press reports, the government of Japan intends to issue additional 5G-suitable mobile frequencies to domestic operators to boost coverage to 95% of the population by end-March 2024 (fiscal 2024). The Communications Minister, Kaneko Yasushi said: 'Speedy expansion of 5G availability is a must. We will swiftly establish the necessary environment so that 5G technology can benefit as many people as possible'. It is understood the state plans to see cellcos increase coverage still further to 97% by the end of fiscal 2025, and 99% by fiscal 2030. Furthermore, the report claims that domestic carriers will be offered subsidies to help the deployment of base transceiver stations in remote, less economically feasible areas. (April 6, 2022) NHK World

## Kazakhstan

The government has seized shares owned by companies controlled by former president Nursultan Nazarbaev's nephew representing nearly 29% of equity in the country's largest telecoms group Kazakhtelecom (KT). In a brief statement on 12 April the government confirmed that it had nationalized an almost 25% KT stake owned by Skyline Investment Company, which is controlled by Qairat Satybaldy, who was arrested last month on charges of embezzlement and abuse of power. In addition, the government statement disclosed that it had seized a KT stake of around 4% held by another of Satybaldy's companies, Alatau Capital Investment. The report added that the announcement comes as President Qasym-Zhomart Toqaev continues to broaden his power following the removal of Nazarbaev and associates from the political scene in the wake of unprecedented anti-government protests in January. (April 14, 2022) RadioFreeEurope

Yerzhan Meiramov, Chairman of the Committee for Telecommunications of Kazakhstan's Ministry of Digital Development, Innovation & Aerospace Industry, has stated that the country will hold a competitive auction for commercial 5G mobile operating licenses in the 3500MHz band at the end of May. As reported by Profit.kz, Mr. Meiramov, speaking at the MWC 2022 forum in Barcelona, indicated that three 100MHz TDD frequency blocks will initially be auctioned in each of Kazakhstan's three largest cities, Nur-Sultan, Almaty and Shymkent, with the expectation that all major domestic mobile operators plus several fixed line operators will show interest in bidding. The official highlighted that legislation was adopted in 2021 giving the Ministry the right to hold a 3500MHz auction, while 'relevant rules were developed and registered with the Ministry of Justice last week', supporting plans to launch 5G services in the three largest cities by end-2022. Additional proposals to create a single shared 5G infrastructure provider were abandoned. Meiramov also noted that subsequent full national development of 5G services will require permission for operators to utilize multiple frequency bands for their fifth-generation networks.

(March 7, 2022) commsupdate.com

## Lithuania

Telecoms watchdog the Communications Regulatory Authority (Rysiu Reguliavimo Tarnyba, RRT) has published plans for the sale of 5G spectrum in the 3.5GHz band. The auction will comprise three 100MHz lots of spectrum in the 3400MHz-3700MHz range, valid for 20 years. Bidders will only be able to bid for one block of spectrum during the auction and the starting price for the airwaves is EUR3 million (USD3.3 million). Winning bidders are subject to certain rollout and service provision and rollout obligations, including requirements to: launch commercial 5G services in at least one city from 2023; deploy 5G networks in major cities from 2024; and extend 5G coverage to all towns and compact built-up areas by 2030. Prospective bidders must register to take part in the sale by 31 May 2022. In a related development, meanwhile, the RRT has announced the list of participants for the upcoming auction of 700MHz spectrum, confirming that Bite Lithuania, Tele2 Lithuania and Telia Lietuva have all registered to take part in the tender. As previously reported by TeleGeography's CommsUpdate, in January this year the RRT postponed the deadline for interested parties to submit documents for the 700MHz auction to 25 March 2022. The 700MHz auction comprises the sale of one 2×10MHz block (713MHz-723MHz/768MHz-778MHz) and two lots of 2×5MHz (723MHz-728MHz/778MHz-783MHz and 728MHz-733MHz/783MHz-788MHz), with initial prices set at EUR5 million and EUR3 million, respectively.

(April 5, 2022) commsupdate.com

The Communications Regulatory Authority (RRT) has ruled that operators are permitted to use their existing spectrum allocations to provide 5G services, Deputy CEO of the RRT Augutis Cesna told BNS. The country is set to hold a 5G auction for spectrum in the 700MHz band in the next few months, with a further auction involving 3.5GHz frequencies will follow in the summer, although the regulator has decided that operators can use their existing spectrum holdings to roll out 5G services. 'It has been written before that [operators] only have to do this using certain bands that will be auctioned. The operator will now be able to do so using not only the frequencies currently auctioned, but also those already available. It will be easier. They have a lot of frequencies and will decide for themselves which frequencies to use,' Cesna was quoted as saying. The upcoming 700MHz auction comprises the sale of one 2×10MHz block (713MHz-723MHz/768MHz-778MHz) and two lots of 2×5MHz (723MHz-728MHz/778MHz-783MHz and 728MHz-733MHz/783MHz-788MHz), with initial prices set at EUR5 million and EUR3 million (USD5.8 million and USD3.5 million), respectively. Participants will be restricted to bidding on one spectrum block during the auction and the concessions are valid for 20 years. Winning bidders are subject to certain rollout and service provision obligations, including a requirement to launch commercial 5G services in at least one of the country's five largest cities (Vilnius, Kaunas, Klaipeda, Siauliai and Panevezys) within six months and to all five by 31 December 2023. (March 9, 2022) commsupdate.com

## Malaysia

The Malaysian government stood by a controversial plan to allow a single 5G wholesale network, but outlined an intention to allocate up to 70 per cent equity in state-owned operator Digital Nasional to telecoms players to alleviate competition concerns. Malaysia will retain the remaining 30 per cent stake in Digital Nasional, a special purpose vehicle set up by the government to manage the single national 5G network. Reuters reported operators will be allowed to hold equity stakes to speed the construction of infrastructure, citing a joint statement from Malaysia's finance and communication ministries. Digital Nasional welcomed the move, stating it looked forward to engaging with operators "to discuss and agree all aspects related to the proposed equity participation". It is not yet clear how mobile operators in Malaysia will respond to the latest proposal. Celcom Axiata, Digi, Maxis and U Mobile have

previously called on the government to set up a second nationwide network, to give the country "the security of dual competing networks". At the same time, they have reportedly expressed interest in being allowed to take equity in Digital Nasional. YTL Communications, a smaller operator, has favoured the original single network plan. Telekom Malaysia previously stated it would support the government's decision. Digital Nasional began a commercial trial of its technology in December 2021 which was due to end on 31 March. The wholesale player now intends to extend the trial until 30 June to allow more operators to sign up. During the trial, operators are allowed to access the network without charge "to provide 5G experiences to their end users". The objective is to achieve 80 per cent coverage of populated areas by 2024.

(March 16. 2022) mobileworldlive.com

## Mexico

The Federal Telecommunications Institute (IFT) has agreed to relax the coverage obligations of wholesale 4G provider Red Compartida. As per its original license agreement, the company agreed to roll out infrastructure covering 92.2% of the population by January 2024, but fell behind schedule in 2021 and went on to file for bankruptcy protection later that year. The watchdog must now comply with the 92.2% milestone by 24 January 2028. Meanwhile, an interim target of 70% has been set for 30 November 2022. According to TeleGeography's GlobalComms Database, in November 2016 ALTAN Redes – a consortium including Axtel,

Megacable and the International Finance Corporation (IFC) – was selected as the winner of a government tender to establish an open-access 700MHz wholesale network. Red Compartida went live in March 2018 and currently covers 69.58% of the population. Red Compartida reached the five million subscriptions milestone in December 2021, up from just 200,000 at the end of 2019. Of the top-line figure, 3.839 million accounts were for mobile use, while the remaining 1.163 million users were signed up to fixed wireless plans. A total of 112 MVNOs utilized the network at end-2021. (March 9, 2022) commsupdate.com

## Montenegro

The telecom watchdog EKIP has approved bids placed by Mtel, Crnogorski Telekom and Telenor Montenegro in a public auction for allocation of national frequency licenses for 5G mobile networks. Mtel won frequencies in the 900 MHz, 1.8 GHz, 2 GHz and 2.6 GHz spectra, while Crnogorski Telekom and Telenor Montenegro secured frequencies in the 2.6 GHz spectrum at the auction held December 27. The licenses will be valid until September 1, 2031, according to EKIP. Montenegro has recently adopted a roadmap to encourage the introduction of 5G mobile networks by the end of 2022. A national strategy is expected to be adopted next year, defining further activities for the support of the rollout of 5G networks in Montenegro,

per government's previous statements. Measures and policy reforms envisaged by the roadmap relate to harmonization of national legislation for electronic communications with the EU rules, implementation of 5G networks on the entire territory of Montenegro and pilot testing projects and removing administrative obstacles, among others. Meanwhile, EKIP said the number of mobile phone subscribers in Montenegro rose 3.7% year-on-year to 1,120,074 at the end of December. The mobile penetration rate in Montenegro went down to 180.65% in December from 185.53% at the end of November, when the number of subscribers was 1,150,310.

(March 10, 2022) africanwirelesscomms.com

## Namibia

The Communications Regulatory Authority of Namibia (CRAN) announced on Friday that the award of new telecoms and broadcasting licenses will be suspended from 1 October 2022 until 30 September 2023. The sector regulator said the decision will allow it to conduct research to determine the current market

level of competition, market saturation, and whether there are any existing barriers to entry into the sector. Although CRAN will not accept new applications during the period, it will consider applications for amendment, withdrawal, transfer, and cession of existing telecoms or broadcasting service licenses when practically

possible, CRAN CEO Emilia Nghikembua said in a statement. In addition, the regulator will accept and consider applications for spectrum licenses from existing service licensees only, and will also accept spectrum applications for bands that are service license-exempt. Based on previous sector review reports and international best practice, Nghikembua explained, the regulator's planned market study needs to be based on a fixed data set, particularly the number of telecoms and broadcasting service licensees operating in the

market. 'While the temporary postponement of the award of new Telecommunication and Broadcasting Service Licenses will impact the business plans of prospective providers or Telecommunication and Broadcasting services, it is paramount that CRAN continuously intervenes in the market dynamics to ensure fair competition, and remove barriers to market entry for the benefit of consumers,' she said.

(April 4, 2022) commsupdate.com

## Nigeria

The government issued an order to the country's mobile network operators to block SIM cards from making outgoing calls if they have not been updated with their owner's National Identity Number (NIN). Following the passing of the registration deadline on 31 March, mobile phone users were given four extra days to link SIMs to their NIN before the final deadline which came into effect at midnight, 4 April. Minister of Communications and Digital Economy Isa Ali Ibrahim Pantami declared: 'All telcos [must] strictly enforce the policy on all SIMs issued (existing and new) in Nigeria. Outgoing calls will subsequently be barred for telephone lines that have not complied with the NIN-SIM linkage policy … Subscribers of such lines are hereby advised to link their SIMs to their NINs before the telcos can lift the restriction on their lines. Affected individuals are hereby advised to register for

their NINs at designated centers and thereafter link the NINs to their SIMs through the channels provided by [the National Identity Management Commission] NIMC and the telcos, including the NIMC mobile app.' A joint statement issued with the Nigerian Communications Commission (NCC) stated that to date 'over 125 million SIMs have had their NINs submitted for immediate linkage, verification and authentication' while the NIMC had issued over 78 million unique NINs. Nigerian newspapers including Leadership and the Independent reported that the call blocking order affected 'around 73 million' SIMs, based on a figure of 198 million total connections reported by the NCC for end-February. The aim of the NIN and SIM registration exercise, which commenced in December 2020 and has been extended multiple times, is to improve security in the West African nation. (April 5, 2022) commsupdate.com

## Norway

The National Communications Authority (Nkom) has announced that it will now use the EC's method for calculating interest with regards to regulated prices in the country's communications markets. In a press release Nkom said that following EU harmonization it has adopted a new common weighted average cost of capital (WACC) of 5.33% for both fixed and mobile networks, with this replacing previous interest rates of 8.3% and 9.1% for regulated prices in the fixed and mobile sectors, respectively. According to Nkom, the new interest charge is in line with the EC's guidelines from 6 November 2019, which are intended to ensure that WACC is calculated in a consistent manner across the various European Economic Area (EEA) countries.

(April 5, 2022) commsupdate.com

The National Communications Authority (Nkom) has called for input on its preliminary assessments regarding its method for defining geographical markets for fixed broadband access. In 2021 the regulator announced the start of work on analyzing the country's fixed broadband markets, as the basis for a possible designation of one or more providers as having significant market power (SMP). Having

sought feedback on fixed broadband market definitions between November 2021 and January 2022, Nkom has now set a deadline of 27 April 2022 for submissions regarding its proposals related to the geographical market definitions. Looking ahead, it has said it aims to complete all analyses related to the fixed broadband sector by the end of H1 2023. (March 24, 2022) commsupdate.com

The National Communications Authority (Nkom) has launched a consultation on the potential transfers of mobile spectrum licenses from ice to Lyse, following the latter's recent announcement of an agreement to buy ice. In a press release regarding the matter, Nkom said that – while it had yet to take a position on the proposed acquisition itself – it was looking to consult on the spectrum license transfer now 'out of consideration for efficient use of time'. Although the regulator has said it will assess the transfer of all spectrum allocations currently held by ice to Lyse, it noted it would pay particular attention to frequencies in the 3.6GHz band. This, it said, is because both ice and Lyse subsidiary Altibox hold spectrum in this band, which when combined would broach a 120MHz cap that was set as part of its 3.6GHz frequency auction which

concluded in September 2021. A deadline of 16 March 2022 has been set for submissions to the consultation, with Nkom noting that the shortened timeframe for its examination of the matter is 'partly because the time of decision is very decisive for the parties to the transfer'. Earlier this month regional energy supplier Lyse entered into a Heads of Terms agreement to acquire Ice Group Scandinavia Holdings (IGSH) from Ice Group and its subsidiary AINMT. This proposed transaction includes the acquisition by Lyse of all issued and outstanding shares of IGSH and such additional assets and shares, including 100% of the shares of mobile operator ice, Phonepartner Norge Holding and Ice Retail Holding. With it noted that deal implies an enterprise value of approximately NOK5.56 billion (USD618 million), Ice Group has said it expects to receive cash proceeds of approximately NOK3 billion, while the transaction is expected to close by the end of this month.

(March 3, 2022) commsupdate.com

## Panama

The Consumer Protection and Competition Authority (Autoridad de Proteccion al Consumidor y Defensa de la Competencia, ACODECO) has approved the proposed merger between Liberty Latin America (LLA)-backed Cable & Wireless Panama (trading as +Movil) and its smaller rival Claro Panama. The merger agreement will now be submitted to the National Public Services Authority (Autoridad Nacional de los Servicios Publicos, ASEP) for review. Notably, the ACODECO resolution has ordered the two companies to 'operate separately and independently' for ten months (starting 17 March 2022) before they start to integrate back-office functions, consolidate financial reports and commence network integration. In September 2021 the LLA subsidiary agreed to acquire Claro Panama from in an all-cash transaction valued at USD200 million. One month later rival operator Digicel Panama filed a complaint with ACODECO, complaining that the merger would lead to an 'illegal economic concentration'.

(March 29, 2022) commsupdate.com

## Poland

Polish national telecom regulator UKE will receive almost PLN 16 million in EU funding for its new system that will monitor the quality of internet services, reports Telko.in. Funds will be allocated under Operational Program Digital Poland (POPC). UKE plans to implement the system by June 2023. (April 12, 2022) telecompaper.com

## Senegal

The President Macky Sall has instructed the Ministry of Digital Economy and Telecommunications to optimize telecoms network coverage by strengthening the universal service fund. Stressing further public and private investment is required to further the country's inclusive digital development, President Sall told a Council of Ministers meeting last week that there is an 'urgent need to redeploy and improve the intervention mechanisms of the Universal Service Funds for Telecommunications (FDSUT)', adding that an assessment of the institution's activities remains a priority. Improving access to telecom services, particularly broadband and mobile payment services, plays a key role in the government's 'Digital Senegal' strategy for the digital transformation of several sectors including health and education, as well as the wider 'Emerging Senegal' economic development plan.

(March 28, 2022) commsupdate.com

## Singapore

The Infocomm Media Development Authority (IMDA) has approved StarHub's acquisition of a 50.1% stake in rival ISP MyRepublic's fixed broadband business which serves some 6,000 enterprise customers including SMEs and large organizations, alongside over 80,000 residential broadband subscriptions in Singapore. In a press release, IMDA said it had assessed that the proposed consolidation 'will not substantially lessen competition in any telecommunication market in Singapore, and will not harm public interest'. It went on to note that all applicants will have to continue to abide by IMDA's current regulatory requirements. Specifically, the acquisition will see StarHub's StarHub Online unit buying the majority interest in a new business entity, MyRepublic Broadband, which holds MyRepublic's broadband business in the city state. In September 2021 Singapore's second largest telecoms operator revealed it was spending up to SGD162.8 million (USD120.5 million) to acquire a majority stake in the rival fixed broadband business. At the time StarHub noted that the deal excludes MyRepublic's mobile business and intern ational business operations. Upon

completion, the transaction will lift StarHub's fixed broadband market share by around six percentage points to close to 40%. Further, StarHub committed to an initial sum of SGD70.8 million for the 50.1% equity interest, plus a SGD92 million 'deferred consideration dependent on future financial performance'. The new majority shareholder also set out its plan to refinance

SGD74.2 million of debt for MyRepublic over a span of three years, upon completion of the transaction, leaving the latter holding 49.9%. MyRepublic's senior management team including co-founder and CEO Malcolm Rodrigues will remain in their roles.
(March 10, 2022) commsupdate.com

## Slovakia

The Office for Regulation of Electronic Communications & Postal Services (Regulacny urad, RU) has published details of its forthcoming auction of 5G-capable spectrum licenses in the 3.5GHz band. The regulator aims to launch the sale in early May this year, with the new concessions valid until end-2045. 39 blocks of 10MHz will be available, with each operator restricted to a minimum of 80MHz and a maximum of 100MHz. If all blocks do not attract bids, the cap will be raised

to 140MHz. The starting price has been set at EUR1.6 million (USD1.7 million) per block, so the state will be raising at least EUR62.4 million if all licenses are sold. Existing nationwide permits in the 3400MHz-3800MHz range expire between December 2024 and August 2025 and are held by Orange, O2, SWAN (4ka) and Slovanet. In addition, Slovak Telekom (ST) and other operators hold regional concessions with an August 2025 expiry date. (March 7, 2022) commsupdate.com

## South Africa

The Independent Communications Authority of South Africa (ICASA) has confirmed the successful conclusion of the main stage of the IMT spectrum auction, with the assignment round to determine the actual spectrum ranges scheduled to be held on 22 March 2022. The auction involved six qualified bidders – Cell C, Liquid Intelligent Technologies South Africa, MTN, Rain Networks, Telkom and Vodacom. The auction included 58 rounds of bidding, with a total of ZAR14.478 billion (USD964 million) raised. One block of 2×10MHz in the 800MHz band went unsold; the lot will still be licensed in the future, the ICASA said.

Spectrum lots acquired in opt-in and main auction:
- Telkom: 20MHz in 800MHz band and 22MHz in 3500MHz band (ZAR2.114 billion)
- Liquid: 4MHz in 3500MHz band (ZAR111 million)
- Cell C: 10MHz in 3500MHz band (ZAR288.2 million)
- Rain: 20MHz in 700MHz band and 20MHz in 2600MHz band (ZAR1.431 billion)
- MTN: 20MHz in 800MHz band, 40MHz in 2600MHz and 40MHz in 3500MHz (ZAR5.152 billion)
- Vodacom: 20MHz in 700MHz band, 80MHz in 2600MHz band and 10MHz in 3500MHz band (ZAR5.382 billion).
(March 21, 2022) commsupdate.com

## South Korea

The telecommunications regulator unveiled a guideline to clarify potential violations of a revised law banning store operators, like Apple and Google, from forcing developers to use their own in-app payment systems. Earlier this week, the country's Cabinet approved an enforcement decree revision of the Telecommunications Business Act that went into effect in September. South Korea became the first country in the world to introduce such curbs on in-app billing policies of the tech giants. According to the guideline revealed by the Korea Communications Commission (KCC), authorities will determine the store operators' violations based on several criteria, including whether app developers are given the freedom to choose their preferred app payment system. The KCC will also determine whether the store operators cause harm to consumer benefit or impede fair competition. The

regulator said the in-app law will likely apply to app store operators with sales of at least 100 billion won (US$81.6 million) in the previous fiscal year and a daily average of least 1 million users, which includes both Google and Apple. Under the new enforcement decree, app store operators will have to pay up to 2 percent of their revenue if they force developers to use their own in-app payment systems, and 1 percent for delays in reviewing apps. The new enforcement decree will go into effect on Tuesday. The in-app payment law came amid growing global scrutiny of Google and Apple, which maintain a strong grip over mobile ecosystems, for requiring developers on their app stores to use their proprietary payment systems that charge fees of up to 30 percent when users purchase digital goods within apps.
(March 10, 2022) en.yna.co.kr

## Spain

The National Commission for Markets and Competition (Comision Nacional de los Mercados y la Competencia, CNMC) has published an updated 'MARCo' offer to improve access to poles and thus speed the deployment of high speed electronic communications networks, especially in areas with lower population density. The MARCo offer (OFE/DTSA/004/20) regulates access to Telefonica's civil works infrastructure – ducts, manholes and poles – which are essential for the deployment of new fiber-optic networks by Telefonica's competitors. In a separate announcement, the watchdog has confirmed that it considers it necessary to subsidize passive infrastructure so that high speed broadband services can be extended to unprofitable areas. Municipalities with between 10,000 and 20,000 inhabitants are not covered by the coverage obligations attached to spectrum concessions. The program has a total of EUR150 million (USD166.7 million), which will be used to support the deployments.

(April 1, 2022) commsupdate.com

## Sweden

The Swedish Post and Telecom Agency (Post & Telestyrelsen, PTS) has submitted a raft of new legislation which it says will form part of a revamp of the country's electronic communications law, which is due to enter force on 1 August. The new regulations include changes to obligations regarding subscriber information, network security, number portability, changing service provider and emergency communications.

(March 3, 2022) commsupdate.com

## United Kingdom

The UK's telecoms regulator Ofcom has launched a consultation related to its proposed strategy for managing radio spectrum used by the space sector, as it noted that this area – and its use of spectrum – continues to grow, with the likes of OneWeb and SpaceX deploying large numbers of new non-geostationary orbit (NGSO) satellites. Ofcom last set out a strategy for spectrum work in the space sector back in January 2017, in which the regulator focused on ways to enable growth in satellite broadband and Earth observation, and set out a workplan which it claims to have 'now largely delivered'. However, with the sector having undergone 'significant change and rapid expansion', Ofcom highlighted an increased pressure on the use of spectrum and a need for coordination to ensure that the increased number of satellites in operation avoid interference between NGSO systems. As such, Ofcom is seeking stakeholder input on its proposed strategy, including evidence on future trends, additional issues that it would be beneficial for it to consider and whether specific issues should be of high priority and why. With the consultation scheduled to close on 24 May 2022, the regulator aims to publish a finalized strategy later this year'. (March 16, 2022) commsupdate.com

The UK's Competition and Markets Authority (CMA) has approved Cellnex Telecom's acquisition of 6,000 passive telecom infrastructure sites in the UK from CK Hutchison, the Hong Kong-based owner of Three UK. However, the deal is subject to the divestment of around 1,000 of Cellnex's existing UK cell sites, which are said to overlap geographically with the CK Hutchison sites to be acquired. The regulatory approval of this deal marks the final component of a series of agreements announced in November 2020 to acquire 24,600 CK Hutchison cell sites in Austria, Ireland, Denmark, Sweden, Italy and the UK. The CMA's approval remains contingent on the implementation of the agreed remedy. The six transactions represent an investment of EUR10 billion (USD10.9 billion), and the agreements also cover the deployment of up to 5,250 new sites (600 of which in the UK) over the next eight years, with an additional investment of EUR1.15 billion. Barcelona-based Cellnex manages a portfolio of more than 130,000 sites – including forecasted rollouts up to 2030 – in Spain, Italy, the Netherlands, France, Switzerland, the UK, Ireland, Portugal, Austria, Denmark, Sweden and Poland.

(March 7, 2022) commsupdate.com

## United States

The Federal Communications Commission (FCC) confirmed final details of its next spectrum auction, with the process scheduled to begin on 29 July and focus on allocating blocks in rural parts of the country. Its latest sale was announced at MWC Barcelona 2022 by FCC chair Jessica Rosenworcel and will cover licenses for the 2.5GHz band in areas with currently unassigned allocations. The regulator expects to offer 8,000 flexible use county-based overlay licenses, though noted it still had some pending applications from communities given priority access to the bands, which could slightly reduce the number available. Alongside publishing the date and final details of the auction, the FCC also launched a mapping tool able to identify the location and scale of unassigned spectrum in specific areas. Rosenworcel stated the "2.5GHz band auction can help deliver on the promise of 5G services and ensure that it reaches as many people as possible,"

emphasizing it provided an "opportunity to fill in some of the critical 5G gaps in rural America". The sale will commence less than nine months after operators pledged to spend around $22 billion on licenses in the 3.45GHz to 3.5GHz range, in a sale lauded as being one of the highest grossing in the country's history.

(March 22, 2022) mobileworldlive.com

The Federal Communications Commission (FCC) has announced that it is ready to authorize more than USD640 million through the Rural Digital Opportunity Fund (RDOF) to fund new broadband deployments in 26 states, which will bring service to nearly 250,000 locations. TeleGeography notes that the majority of the companies that will receive funding at this stage are smaller regional operators, although the likes of Windstream, Frontier Communications and Atlantic Broadband are all on the FCC's list of winning bidders. According to TeleGeography's GlobalComms Database, the RDOF Phase I auction (Auction 904) commenced on 29 October 2020, having attracted a total of 386 qualified bidders. In the event, the regulator awarded a total of USD9.2 billion in funding to 180 bidders. A total of 5.2 million unserved homes and businesses – around 99% of the locations included in the auction – will gain access to high speed internet services as a result. This includes rural Americans in 49 states and the Commonwealth of the Northern Mariana Islands. To

date, the FCC says that the RDOF program has provided USD4.7 billion in funding to nearly 300 ISPs for new deployments in 47 states, extending broadband to almost 2.7 million locations. (March 15, 2022) commsupdate.com

Speaking at the Mobile World Congress 2022 event in Barcelona, Federal Communications Commission (FCC) chairwoman Jessica Rosenworcel has announced that the US watchdog expects to stage its next 5G-suitable spectrum auction in July this year. She told delegates: 'Now for the big reveal. I'm excited to announce today that the United States will hold another mid-band spectrum auction. This July we will kick off our auction of the 2.5GHz band. This is the single largest swath of contiguous mid-band spectrum we have below 3GHz and the airwaves available in this auction are going to help extend 5G service beyond our most populated areas. Then, no rest for the weary, we will turn our sights to working with our federal partners to open up the next tranche of mid-band spectrum in the 3.1GHz-3.45GHz band.' Intriguingly, Ms. Rosenworcel also suggested that the US is ready to lay the groundwork to support its future 6G agenda. She noted: 'In fact, I believe for 6G we need to start planning now to identify spectrum in the 7GHz-15GHz range that can support faster speeds and wider coverage. I also believe it's not too early to harmonize these efforts across the world.'

(March 2, 2022) commsupdate.com

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## Uruguay

Uruguay has held a referendum on whether or not to partially repeal Law 19,889/2020 ('Law of Urgent Consideration'), including an article which paved the way for the introduction of mobile number portability (MNP) earlier this year. Over 1.087 million people voted against repealing a total of 135 articles of the controversial law, compared to more than 1.065 million who voted for the move. Law 19,889/2020, which was

approved in July 2020, covers matters including public safety, national security, housing, education, labor rights, financial matters and also declares that number portability is a right of users of mobile telephony services. However, the law's critics have described it as unconstitutional and undemocratic.

(March 30, 2022) TeleSemana

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## Vietnam

The Ministry of Information and Communications (MIC) set an ambitious goal to significantly boost mobile broadband penetration and ensure every adult owns a smartphone. Deputy Minister of Information and Communications Pham Duc Long, speaking at the World Mobile Broadband and ICT Summit 2022 in Hanoi, reportedly said the government aimed to increase the number of mobile broadband subscribers from 57 per cent of total users in 2021 to 85 per cent by

end-2022. Considering mobile broadband penetration rose 4 percentage points year-on-year in 2021, hitting the 28-percentage point target would be an impressive achievement. The country ended 2021 with 70.9 million broadband subscribers, MIC stated. Data from GSMA Intelligence showed 78 per cent of mobile users had smartphones at end-2021. The country of 97 million people had 156 million mobile connections, including 42.9 million LTE. (March 10, 2022) Vietnam News Agency

## Zimbabwe

The Postal and Telecommunications Regulatory Authority of Zimbabwe (Potraz) will allow telecommunication network operators to adjust tariffs in tandem with rising costs to ensure sustainability of operations in the sector. However, the telecoms regulator said it would remain cautious of the need to guarantee service affordability for subscribers given that disposable incomes remain under pressure. Potraz said the rising cost of operations prompted it to approve data and voice call price increases by fixed and mobile network operators, which has elicited complaints from subscribers, as disposable incomes remain low. Resultantly, Potraz's 2021 fourth-quarter sector performance report saw a 13,8 percent decline in national voice traffic while the international outgoing voice calls traffic retreated by 1,9 percent compared to third-quarter. Similarly, mobile data traffic declined by 3,5 percent to 24,9 terabytes compared to the third quarter's traffic of 25,9 terabytes. The industry regulator said the downturn in volumes for the fourth quarter of 2021 was the only period the sector had recorded a decline in mobile internet and data traffic last year. Presenting the 2021 postal and telecommunications sector performance, Potraz Director General, Dr. Gift Machengete said fixed and mobile telephone tariffs had overtime been increased to maintain viability. However, Dr. Machengete noted that while players have moved to address increasing cost of operating, subscribers' disposable incomes had not kept pace with the price adjustments, which he hoped would improve in future. "We are still going to have issues to do with the balancing act of our tariffs and affordability, the operators will need tariffs that allow them to provide services on the other hand consumers have to be able to afford the service. "So that balancing will continue, and we only hope that something will be done on the incomes side so that at least the balancing act can be easier for us. "This is an issue we think we will continue to debate so that we find equilibrium where the operators are happy and also the consumers are happy," said Dr Machengete. In the third quarter, NetOne gained 0,7 percentage points of market share to 31,4 percent while Econet and Telecel shed 0,2 and 0,5 percentage points to 64,9 and 3,7 percent, respectively. However, the telecoms sector's full-year performance for 2021 saw all traffic categories registering growth except for fixed voice, which posted a decline of 5,1 percent. Internet traffic dominated growth at 97,2 percent, which was driven by an 8,1 percent growth in mobile data subscriptions and 7,3 percent growth in new internet customers compared to 2020. Deployment of 335 new base stations, particularly LTE, also contributed to the growth in overall internet traffic in 2021, as it led to marginal improvements in population coverage. As such, revenue grew across all service markets. Mobile telephony grew 46,1 percent to $97 billion, in inflation-adjusted terms, while Internet Access Providers (IAPs) revenue paced fastest at 51,1 percent to $35,5 billion. Fixed telephone revenue improved by 42,8 percent for the year to $11,3 billion, in inflation-adjusted terms, while the postal and courier segment revenue registered modest growth at $1,95 billion, a 37,9 percent jump.

(April 17, 2022) herald.co.zw

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