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SAMENA TRENDS

FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

Anjian
President Middle East & Central Asia
Carrier Business Group
Huawei

THIS MONTH

EVOLUTION OF CONNECTIVITY BEYOND 5G

SAMENA
TRENDS

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Evolution of Connectivity beyond 5G

Until 2030, and between now and then, there is considerable progress that we need to make on multiple fronts, which includes provisioning meaningful access to connectivity and achieving beneficial utilization of the 5th generation technologies that our industry has created. Moreover, there is now an emerging concept of creating a 10 Gigabit society in the region; an aspiration that SAMENA Council is supporting fully in collaboration with its Members.

The Middle East is among the world's very first regions to adopt 5G, and is home to some of the most well-defined ICT and economic diversification visions in the world, translated into action by progressive regulatory authorities working tirelessly to support the private sector in its business and digital transformational endeavors. All GCC states have now launched 5G commercial services, thereby setting a strong foundation for dramatically evolutionary trends to take place, including the emergence of 5G Advanced.

As we move toward setting new objectives in the region with respect to gigabit broadband and beyond, it is important to maximize the true potential of 5G and creating a foundation for beneficial, real-life use cases and sustainable advancements in the future, should be a top priority.

For the region to benefit from 5G, the investors, the Telecom Operators, must be much better incentivized. In turn, and for such large infrastructure investments to take place, some right drivers need to be put and kept in place. 5G-centric endeavors in the region need to remain an outcome of mutual enablement; a result of both government-led initiatives and consumer-driven demand for mobile services against the backdrop of prioritized economic diversification in the region.

However, the region should also continue to inspire neighboring regions, such as Central Asia, in its mobile technology evolution from 3G, to 4G, and now increasingly 5G. The development of 5G in such regions is largely dependent on macro-economic development, political stability, and improvements in the standard of living that would predicate demand. This is so, because the rollout of 5G technology requires a stable state and competitive industries to develop the necessary infrastructure. The long-term benefits of 5G may seem far-off in the distant future for most of the regions, but even small-scale development could still make crucial contributions for these economies. We are certainly seeing growth in Central Asian countries with respect to digital services, which can greatly scale out on 5G infrastructure. Initiatives led by Kundalik in Kazakhstan are some notable examples.

Businesses in the Middle East region that build global digital platforms, such as Yandex, will be central to the digital economy of the region. Focus on digital innovation and ability of choice given to end-users, for example, through choice screens, can have a direct role on digital economic development of the region. However, the enablement of such platforms requires adjusting regulatory approaches, setting better incentives, adopting agility and evidence-based regulation (including sandboxes) to account for emerging trends within the digital ecosystem, which now increasingly houses a highly diversified group of digital consumers.

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

High-level harmonization of policy and regulatory efforts in collaboration with Telecom Operators and Technology Providers is crucial in getting the most out of the digital innovations, including evolving 5G to its natural next phase. In order to address impediments to 5G adoption and to bring the benefits of 5G to the region and to "Bring 5.5G to Reality" or to build "10 Giga Digital Infrastructure for Accelerating a Robust & Sustainable Digital Economy" in the Middle East and neighboring regions, we need to orient ourselves to sustainable digital development, acknowledge efforts of key industry players, and, together, execute better forms of collaboration.

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Building a Fully Connected, Intelligent World

SAMENA COUNCIL ACTIVITY

SAMENA Council Supports 5G Evolution to "Bring 5.5G into Reality"

SAMENA Council has announced its support to the 14th Global Mobile Broadband Forum (MBBF) to be held from October 10 to 11 at the JAFZA One Convention Center in Dubai. To be held under the theme "Bring 5.5G into Reality", MBBF 2023 will bring new insights on 5G business models, evolution of mobile technologies, improved user experience, green ICT development, among others.

Following 5G investments in the region, the path to 5G and 5.5G growth appears to be relatively clear. Treading it, however, requires critical and timely decisions on all parallel fronts, ranging from technology, resources, use-cases, investments, policy and regulation, carbon control, and both social and business value-creation.

In efforts to exploit true potential of 5G and achieving cross-sector 5G business successes, and building adjacent vertical ecosystems to reconnect, rebuild, and reimagine a fully-connected, intelligent world powered by 5G/5.5G, SAMENA Council's support to MBBF 2023 underpins the need to work together in new ways across the Middle East as well as other regions. It also reflects on the Council's focus on advocating maximization of the potential of 5G investments, including through meaningful use-cases and applications that can advance the mobile future, and accelerating technology evolution from 5G to 5.5G and beyond.

CEO of SAMENA Council, Bocar BA, has stated that "MBBF 2023 is being organized by a key member of SAMENA Council, Huawei Technologies. As an industry representative body for the region's ICT private sector and as a sector-development partner to regional governments, policymakers and regulators, SAMENA Council views MBBF 2023 to be an important step in showcasing 5G evolution and fostering cooperation building, including on green technologies."

> *SAMENA Council's support to MBBF 2023 underpins the need to work together in new ways across the Middle East as well as other regions.*

MBBF 2023 will bring firsthand insights and exchanges on groundbreaking technologies, emerging ecosystems, game-changing products, and more within the 5G and 5.5G (or 5G Advanced) ecosystem.

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UBBF

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Business Success Story Sharing
Dive into Cooperation and Win-Win Practices

Hands-On Experience with Innovations
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In-Depth Talks with Industry Stakeholders
Extensive Communication on Future Industry Development

SAMENA TELECOMMUNICATIONS COUNCIL
BUILDING DIGITAL ECONOMIES
ACCELERATOR

UBBF

10 Giga Digital Infrastructure for Accelerating a Robust & Sustainable Digital Economy

October 13, 2:30 PM
JAFZA ONE Convention Center, Dubai

For more information, please write to: smnaccelerator@samenacouncil.org

SAMENA ACCELERATOR on October 13th to Build Case for 10 Gigabit Infrastructure Development in the SA-ME-NA & Neighbouring Regions

SAMENA (South Asia Middle East North Africa) Telecommunications Council has announced that its SAMENA ACCELERATOR on 10 Gigabit digital infrastructure will be held on October 13th at 2:30 PM at JAFZA One Convention Centre, Jebel Ali, Dubai – UAE.

In collaboration with its valued member, Huawei Technologies, SAMENA Council's SAMENA ACCELERATOR on 10 Giga will be held as a policy-level session within the main Ultra Broadband Forum 2023.

Building onto the earlier 2021 edition of SAMENA ACCELERATOR, which focused on advancing fiberization policies as well as creating momentum on the shift toward IPv6 transition, and brought diversified leadership insights from around the SA-ME-NA region and Africa, the 2023 SAMENA ACCELERATOR aims to corroborate the strong need for adopting Fiber and IPv6 innovations, which have emerged over the last two years.

SAMENA Council believes, these two technology aspects, when packaged as critical enablers of Gigabit networks in the SA-ME-NA region, and particularly in the GCC markets, can dramatically help accelerate digital economic development, fulfil ambitious national ICT visions, and pave a path for true industrial and societal transformation in the region and in neighbouring regions, such as Central Asia.

> *"The October 13th SAMENA ACCELERATOR will address the need to understand how well various regional markets are moving toward fulfilling national ICT visions and materializing the gigabit society concept, which is already under implementation in developed countries. But, here, in the region, we want to plant seeds for the 10 Gigabit society. Advancements in fixed-line networks, investments in 5G, coupled with excellent policy and regulatory approaches have the potential to help us realize this concept."*
>
> **Bocar BA, CEO & Board Member of SAMENA Council**

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SAMENA Council observes that the region, particularly, and neighbouring regions, generally, need to come at par with economies with more experience in digital transformation. However, drastic steps are necessary to be taken to further broadband development and IPv6 transformation, of which moving toward "gigabit" would be a leap forward.

SAMENA Council invites participation of industry professionals to the SAMENA ACCELERATOR, and looks forward to welcoming guests in Dubai.

Broadband Commission Urges Collaborative Action to Accelerate Connectivity and Progress on Sustainable Development Goals

The Broadband Commission for Sustainable Development called for a joint global effort to achieve universal and meaningful connectivity by 2030 at its annual Fall Meeting held at UN Headquarters in New York. According to the Commission, the collaborative effort must ensure that people around the world are not only connected, but that they also have the skills and knowledge to use that connectivity. The Broadband Commission—a high level public-private partnership fostering digital cooperation and developing actionable recommendations for achieving universal connectivity—stressed that accelerating universal and meaningful connectivity through partnership and cooperation is essential to achieve the UN Sustainable Development Goals (SDGs) by 2030. "We need to build a digital future that is inclusive, affordable, sustainable, safe and people-centered," said Commission Co-Chair Carlos Slim. "There should be no digital deserts in the world, and there should be no one excluded from connectivity. People have the right to enjoy a safe, productive and affordable online experience. Broadband should enhance the quality of life of everyone." At the meeting, the Commission called for innovative investment models to bring together private and public stakeholders to deliver meaningful access and content to those most in need. "As technology advances and 2.6 billion people remain unconnected, it's crucial to prioritize universal and affordable broadband access, coupled with investments in digital skills, and the elements that truly define meaningful connectivity, such as inclusive and localized digital content, accessible hardware, cybersecurity measures, and policies that ensure digital inclusion for all," said Hon. Paula Ingabire, Rwanda's Minister of Information Communication Technology and Innovation representing Rwandan President Paul Kagame, Co-Chair of the Commission. The Commission's meeting

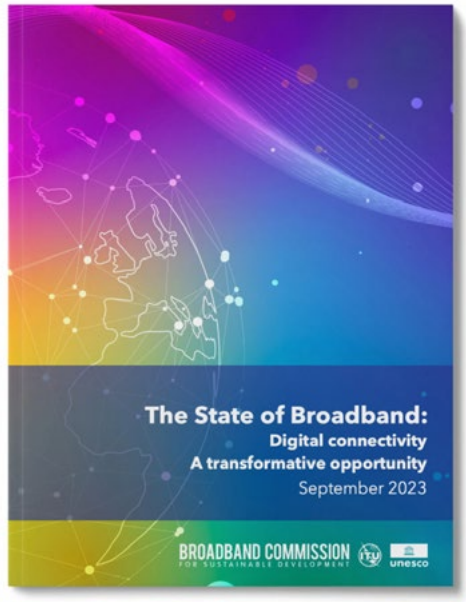
> *"As technology advances and 2.6 billion people remain unconnected, it's crucial to prioritize universal and affordable broadband access, coupled with investments in digital skills, and the elements that truly define meaningful connectivity, such as inclusive and localized digital content, accessible hardware, cybersecurity measures, and policies that ensure digital inclusion for all"*

comes amid the recent ITU announcement that 2.6 billion people across the world still lack access to the Internet in 2023. The reduction from the estimated 2.7 billion people offline in 2022 leaves about one-third of the global population unconnected. This year's Annual Meeting also took place ahead of SDG Digital, an event convened by the International Telecommunication Union (ITU) and United Nations Development Program (UNDP) to highlight how digital solutions can support the UN's 2030 Agenda for Sustainable Development. "Tech is racing ahead and billions of people are being left behind," said ITU Secretary-General Doreen Bogdan-Martin, a Co-Vice Chair of the Commission. "Our task is to invest in affordable broadband, digital skills, and everything that makes connectivity meaningful." At the meeting, the Broadband Commission launched "State of Broadband Report: 2023 Digital Connectivity – A Transformative Opportunity." The latest edition of the annual report reviews the progress of seven Global Advocacy Targets and highlights the opportunities that would come from broadband that is universally available, equitable and affordable. This year's report notes that market trends for consumption and supply are shifting despite gains in connectivity. Those trends may not be strong enough to guarantee that the objective of universal and meaningful connectivity will be met by 2030.

The report offers five considerations for how future efforts on connectivity for digital transformation should be financed and funded:

- defining measurable goals;
- addressing barriers to Internet use where coverage is available;
- broadening the contributor base and implementing creative funding approaches;
- aligning and incentivizing funding contributors;
- building sustainable network infrastructure policies.

"Rapid technological advancements hold transformative potential that, together with a renewed global solidarity and international cooperation, will play an essential role to attain the international development goals," said Dr. Tawfik Jelassi, Assistant Director-General for Communication and Information, UNESCO. "The Broadband Commission and UNESCO remain committed to fostering this crucial multi-stakeholder dialogue and producing strategic foresight that will help us set international standards and lead the way in leveraging ICTs for sustainable digital transformation." The Broadband Commission develops policy recommendations and thought leadership focused on the use of broadband connectivity to accelerate progress toward achieving the UN's 2030 Agenda for Sustainable Development and universal and meaningful connectivity. To mobilize efforts to bring the life-changing benefits of digital transformation to everyone, the Broadband Commission puts broadband connectivity at the forefront of global policy discussions. A Working Group on Data for Learning, chaired by UNESCO, and one on



Connectivity for MSMEs, chaired by ITC and the GSMA, presented findings and recommendations of their final reports during the Annual Meeting. Over 50 Commissioners and representatives attended the Broadband Commission meeting. This included government leaders, as well as heads of international organizations, private sector companies, civil society and academia. Special guests attending this year's Annual Meeting included: Mondli Gungubele, Minister of Communications and Digital Technologies of South Africa; Jessica Rosenworcel, Chairwoman of the U.S. Federal Communications Commission; and Kyoung Yul Bae, President, Korea Information Society Development Institute (KISDI).

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LEADING IN CUSTOMER-CENTRIC INNOVATIONS

Revolutionizing the Saudi Telecom Market: Mobily's Customer-Centric Approach and Digital Innovations

Eng. Salman Bin Abdulaziz Al Badran
CEO
Mobily

In today's fast-paced world, where customers have countless options at their fingertips, establishing and maintaining a loyal customer base can be a challenging task. This is especially true in the highly competitive telecommunications and technology sectors. With new technologies constantly emerging, customers often switch providers to access the latest services. In such a dynamic market, a telecom company's success hinges on its ability to not only attract but also retain customers consistently.

Mobily, as a leading telecom company in Saudi Arabia, has taken significant strides in recent years by prioritizing customer needs and delivering exceptional experiences. We recognized the evolving expectations of customers by embracing the digital transformation to offer customized solutions that cater to individual requirements. Gone are the days of off-the-shelf and one-size-fits-all packages as costumers expect tailoring services to meet their unique demands.

Our commitment to providing a world-class customer experience has garnered recognition from various industry bodies. In 2022, Mobily received the prestigious "Best User Experience Award" from the Communications, Space & Technology Commission (CST), acknowledging its dedication to enhancing user experience and delivering top-notch services. This accolade was not a one-time achievement, as Mobily secured the same award consecutively in 2023, solidifying its position as a leader in customer satisfaction.

> *In 2022, Mobily received the prestigious "Best User Experience Award" from the Communications, Space & Technology Commission (CST), acknowledging its dedication to enhancing user experience and delivering top-notch services.*

Moreover, our exceptional network performance has been acknowledged at the Mobile World Congress. In 2022, the company received two Ookla Speedtest awards, establishing itself as the highest-rated mobile and fixed network provider in Saudi Arabia. These achievements reflect our relentless pursuit of excellence and its unwavering commitment to delivering superior connectivity and uninterrupted services.

To maintain its strong leadership position, we have made substantial investments in infrastructure, technology, and product development. Our strategic refresh has enabled us to proactively differentiate the company's portfolio through intuitive products and services while also creating new revenue streams in crucial digital and ICT areas. By fostering partnerships with industry giants like Ericsson, Cisco, and Equinix, we have leveraged cutting-edge technologies, such as artificial intelligence and IoT, to enhance its offerings and deliver seamless and secure solutions to our customers.

Our digital payment system, Mobily Pay, exemplifies the dedication to innovation and convenience. With the transformative power of mobile and digital wallets, we become an industry leader in facilitating secure financial transactions. By attracting renowned financial transaction providers to its platform, such as Visa and MoneyGram, we have expanded our reach and solidified our position as a trusted partner for customers' financial needs.

Furthermore, we recognize the importance of growing our digital infrastructure to meet the demands of a connected world. Through participation in the Africa-1 undersea cable system consortium, we have actively contributed to establishing and strengthening the Kingdom's connectivity across the Middle East, Africa, and Europe. This commitment to enhancing digital infrastructure aligns with our pursuit of excellence and sustainability at all levels,

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> *Mobily's success is a testament to our forward-thinking approach and unwavering dedication to its customers and partners. As we continue to evolve and adapt, it remains committed to bringing the best, most innovative services to our customers, never losing sight of their needs and aspirations.*

ultimately benefiting our valued customers.

Mobily's transformation journey is far from over. We remain dedicated to continuously enhancing our product and service offerings to meet evolving customer needs. With a focus on connectivity, security services, IoT solutions, and other digital services, we aim to ensure staying at the forefront of technological advancements. By staying ahead of shifting trends and delivering solutions that truly make a difference, we object to solidify our position as the telecom market leader, providing unmatched customer experiences and driving innovation in the digital economy.

Mobily's success is a testament to our forward-thinking approach and unwavering dedication to its customers and partners. As we continue to evolve and adapt, it remains committed to bringing the best, most innovative services to our customers, never losing sight of their needs and aspirations. We are dedicated to lead the way in unlocking sustainable commercial growth through strong leadership, world-class customer experience, and relentless pursuit of digital innovation in the Saudi telecom market.

Let's advance together digital transformation for all!
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REGIONAL PERSPECTIVES BEYOND SA-ME-NA REGION

The Foundation for Harnessing Uganda's True Digital Potential Rests on Its Commitment to Sustainable Development Goals and on Women in Leadership

Uganda, a country in East Africa, has been experiencing a telecommunications revolution, thanks in large part to the proactive regulation and initiatives spearheaded by the Uganda Communications Commission (UCC). This regulatory authority has played a pivotal role in shaping the telecom landscape in Uganda over the past two and a half decades, with no intention of slowing down.

With a rich legacy spanning 25 years in the communication sector and ambitious plans for the coming decade, Uganda is positioning itself as a digital trendsetter.

> *UCC has maintained a proactive and comprehensive regulatory approach, monitoring broadcast content to ensure it aligns with established ethical and quality guidelines. The regulator's push for digital transition promises enhanced broadcasting experiences, while the focus on promoting and protecting consumer interests ensures the public has access to quality content.*

A significant beacon of this transformative era is Eng. Irene Kaggwa, who has been at the helm as the Acting Executive Director (ED) of UCC since 2020. Under her leadership, UCC's major initiatives have positioned Uganda back on the global ICT map. Kaggwa's visionary contributions encompass a wide range, from implementing a comprehensive digital transformation strategy to championing internationally acclaimed reductions in retail data bundle prices. Her unwavering commitment has also been evident in the strife for inclusive social-economic development.

The surge in subscriptions and internet traffic indicates a shift in how Ugandans communicate and access information. On-net and off-net minutes, international traffic, and mobile money transactions have all shown impressive growth, further underlining the growing of importance of the telecom sector in daily life and business. The UCC's continuous efforts to enhance network coverage and encourage investment in broadband technology have contributed significantly to the increased uptake of telecom and internet services.

The Ugandan telecom market boasts of major players, including MTN Uganda, Airtel Uganda, and others. MTN Uganda and Airtel Uganda, as the market leaders, have lately made significant strides by launching 5G technology, thus bringing ultra-broadband services to the citizens of Uganda.

Uganda's National Digital Transformation Vision

The Ministry of ICT & National Guidance has orchestrated an ambitious Digital Transformation Targets roadmap for 2030. This blueprint aims to transform Uganda into a digital society that thrives on innovation, productivity, and competitiveness. By focusing on achieving 90% Broadband

Coverage and transitioning 85% of Government Services online, the ministry envisions a digitally equipped Uganda. There's also an emphasis on empowering 70% of Ugandans with digital skills and promoting local ICT innovations.

Uganda's strategic thrust toward digital transformation is further amplified by its focus on financial inclusion. UCC's regulatory collaboration with the Bank of Uganda has fostered the growth of mobile money services, as evident from the swell in mobile money accounts from 36.8 million to 37.3 million in just three months.

The economic impact of these digital initiatives has been dramatic. The telecom sector alone reported quarterly revenues of UGX 1.34 trillion, with an additional UGX 58.4 billion compared to the previous year. These financial inflows, buoyed by tax contributions such as local excise duty and value-added tax, have bolstered government revenues. These funds, in turn, are reinvested in various sectors, propelling advancements in infrastructure, education, healthcare, and other crucial services, thereby enhancing the quality of life for Ugandans.

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25 Years of Communication Evolution

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Over the past quarter-century, the UCC's role in shaping the nation's communication landscape has been evident. The transition from a UGX 18,000 service charge in 2014 to waiving off these charges by 2023 reflects the nation's focus on affordability among the consumers.

Infrastructure has seen significant growth, with communication towers increasing from 3,208 in 2013 to 4,907 by 2023. The ICT sector's contribution to the national GDP has also grown, reflecting its vital role in the economy.

Empowering Local Audio-Visual Content

The UCC has also been pivotal in promoting local audio-visual industry. Through various programs, they have supported and promoted local talent, ensuring Ugandan narratives find their rightful space in mainstream media. Mandating a specific quota of local content on TV and radio ensures that local productions get the international visibility they deserve.

Ensuring Universal Access

The UCC's establishment of the Universal Service and Access Fund (USAF) emphasizes their commitment to expanding communication access to all persons. This fund focuses on providing communication services to underserved regions, ensuring telecom and internet services reach every corner of Uganda, applicable to every Ugandan.

UCC's Contributions to Uganda's Digital Development

The Uganda Communications Commission (UCC) stands at the forefront of the digital revolution underway in the country.

Over the past two and a half decades, the UCC has actively encouraged healthy competition among telecom

UCC's Key Market Enablement Initiatives

UCC, established to implement the provisions of the Uganda Communications Act 2013, has made several strides in ensuring Uganda remains digitally competitive. This is in the context of the following policy and strategic objectives:

- A Fourth Industrial Revolution (4IR) strategy for the adoption of 4IR technologies in Uganda
- The digital transformation roadmap launched in August 2023 with five pillars
- Achievement of backhaul/ transmission optical fiber to all 4 borders of the country
- Launch of CubeSat PearlAfricaSat-1 in 2022 for research and observation
- Commercial launch of 5G technology in August 2023

UCC's key contributions over the last three years include:

- Introduction of regulatory tools to ensure a conducive investment environment
- Development of an audio-visual content strategy 2020-2025
- Establishment of a Digital Financial Services Lab
- Initiation of a one-year DAB+ radio pilot in September 2023
- Development of a national ecommerce platform in collaboration with industry and academia

Key Contributions of UCC with Direct Impact on the Citizens of Uganda

The UCC has also profoundly impacted Ugandans by:

- Reducing retail prices
- Issuing guidelines to enable television access for persons with disabilities
- Providing smart tablets with complementary data subscriptions to low-income households
- Offering digital capacity-building for the public, farmers, SMEs, women, youth, and the elderly
- Establishing computer labs in over 1300 government-aided schools
- Creating public internet access facilities in multiple public and community libraries

Uganda's Commitment to SDGs

Sustainable Development Goal 5 (SDG 5) aims to "achieve gender equality and empower all including women and girls." Eng. Irene Kaggwa's role as the Acting Executive Director (ED) of UCC since 2020 serves as a testament to Uganda's strides toward this goal. Her leadership on the ICT reflects on Uganda's commitment to breaking gender barriers and ensuring equal representation in leadership positions within the ICT industry.

Under Kaggwa's visionary leadership, Uganda's UCC has scaled to new heights in the global ICT arena. Her ascent to a pivotal position inspires countless Ugandan women to pursue careers in ICT, challenge gender norms, and envision globally-aligned leadership roles. Through her contributions, Kaggwa stands as a beacon for women's empowerment, reinforcing Uganda's dedication to fulfilling the Sustainable Development Agenda, which includes making tangible progress on SDG 5.

market providers, leading to improved service quality and affordable tariffs for consumers.

The UCC has also focused on training the youth in view of the demographics of the country, equipping them with the skills needed to harness emerging technologies, fostering digital literacy, and creating a workforce that can leverage entrepreneurial opportunities in the digital age.

The telecom industry in Uganda has grown exponentially with the guidance of the UCC. Quarterly revenues recorded by the industry show a significant contribution to Uganda's economy, with a steady influx of funds supporting various government initiatives, improving infrastructure, education, healthcare, and other essential services for Ugandans.

Uganda's Digital Ascent

While Uganda has made remarkable strides in the digital realm, challenges such as enhancing rural connectivity and mitigating the digital divide remain. Nonetheless, the introduction of 5G and a steadfast dedication to narrowing the digital chasm inspire confidence in a progressive future.

The past 25 years stand as a testament to Uganda's unwavering commitment to its digital evolution. As the nation charts its path towards its 2030 objectives, it stands on the cusp of becoming East Africa's foremost digital leader. With a blend of vision and resilience, Uganda is not just crafting its success story but also lighting the way for others in the region.

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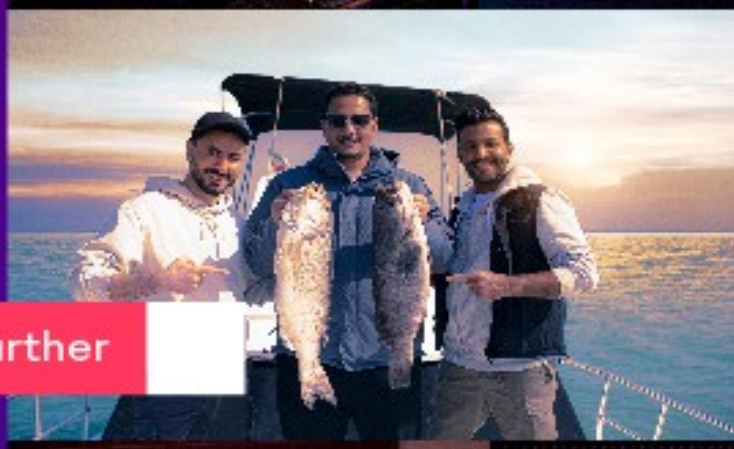


stc

MEMBERS NEWS

stc Group presents Its Digital Fintech Solutions During “Seamless Saudi Arabia 2023”

stc Group, the engine of digital transformation in the region, took part in the "Seamless Saudi Arabia 2023" exhibition and conference held in Riyadh. Over 500 exhibiting companies, both local and international, along with 2000 company representatives and 300 speakers, convened at the conference. The group's primary focus revolved around its position as a digital transformation engine for fintech, e-commerce, retail, and payments industries, achieved via avant-garde digital solutions. stc Group exhibited its digital and technical offerings, including implementing Standard and Soft POS through smart devices and payment systems. Additionally, stc provided ATM monitoring services and utilized VR technologies within the Metaverse. Notably, stc leveraged AI technologies for geographical analysis, fraud detection, Anti-Money Laundering, and contact points, among other applications. Channels by stc expanded its offerings by leveraging its logistics arm, dal, to provide last-mile solutions. The company also entered into strategic agreements with key players in the market, including Jahez Company, Alinma Bank, and Basalah e-commerce platform, to solidify its position and ensure sustainability in the market. The services and products offered by myStore were also part of this expansion. During the conference, stc Group entered two MOUs with Saudi Bright Ware, a company specializing in Software Development and System Integration as well as payment solutions. The MOU will facilitate financial and payment services for stc's business sector clients. In addition, stc has entered a second MOU with Paytabs, a company that specializes in providing payment solutions for business transactions between corporations and organizations. The MOU encompasses the exploration of ways to enable financial services and the discussion of payment system development. Moreover, the MOU aims to enhance the innovation prospects in fintech and provide a payment gateway service designed explicitly for stc within the business sector. stc's participation in the "Seamless Saudi Arabia 2023" conference and exhibition is a testament to its dedication to revolutionizing the fintech, e-commerce, retail, and payments landscape. The group is channeling its resources towards developing cutting-edge payment solutions that optimize digital payment platforms for individuals and the corporate sector across diverse industries. stc remains committed to empowering various sectors digitally and advancing progress by providing state-of-the-art solutions.

Etisalat by e& to Invest Up to $194.4mln in Egypt in 2024

Etisalat by e&. will invest at least EGP 6 billion into the Egyptian market in 2024, Asharq Business reported on September 7th, citing Chief Consumer Officer (CCO) Ahmed Yahia. During a press conference, Yahia expected the National Telecom Regulatory Authority (NTRA) to introduce new increases in telecom services before the end of this year. Yahia revealed that his company submitted a request to the NTRA to increase the prices of telecom and internet services by marginal rates that are not equivalent to inflation rates. In 2022, Etisalat Misr rebranded itself as Etisalat by e&, in line with the rebranding of e& Group in the Emirati market.

e& Receives Tier 4 Certification from World Teleport Association

e& has been awarded Tier 4 certification for its Tawi al Saman teleport in Sharjah and Jebel Ali teleport in Dubai, under the World Teleport Association's (WTA) Teleport Certification Program. e& has joined an exclusive circle of teleports, becoming the first in the MENA region and the 12th globally to receive such a prestigious industry certification. The Teleport Certification Program entails a meticulous evaluation process, and the 'Tier 4' certification signifies the highest level of excellence. The achievement underscores the success of e& in establishing an environment conducive to satellite operators and service providers, leveraging e&'s capabilities to deliver satellite solutions tailored to the MENA region and global markets. The certification also reinforces e&'s support for Low Earth Orbit (LEO) and Medium Earth Orbit (MEO) satellite constellations. Nabil Baccouche, Group Chief Carrier & Wholesale Officer, e&, said: "The UAE today has a global standing in the space and satellite industry with a thriving ecosystem strengthening the nation's leadership in space technology. The Tier 4 certification from WTA reiterates our commitment towards contributing to building a robust satellite infrastructure. Thanks to our team's continuous dedication, innovation, and commitment, we consistently uphold the highest standards of quality, security, and efficiency standards." e& currently operates a network of advanced teleports that enjoy comprehensive access to a majority of satellites spanning the EMEA and Far East regions. The teleports also offer connectivity to international submarine cables, global VPN network, cloud network and SmartHub datacenters in UAE solidifying e&'s role as a critical link in the global telecommunications landscape. The Tier 4 certification is a testament to e&'s steadfast commitment to delivering impeccable network reliability and high-quality satellite services.

Mobily Pay, HMS Join Forces to Enhance Digital Payment

Mobily and Pay Huawei Mobile Services (HMS) and, a trailblazing name in digital payment solutions, have unveiled a partnership at the Seamless KSA event vowing to revolutionize the mobile payment landscape for Huawei users in the region. At the heart of this partnership lies the integration of Mobily Pay into Huawei AppGallery, providing Huawei users across Saudi Arabia with seamless access to a diverse array of digital payment services. With this partnership, Huawei users now have the privilege of effortlessly utilizing Mobily Pay's extensive suite of digital payment solutions. This development is poised to simplify daily financial transactions, offering enhanced convenience, speed, and security to users in the KSA.

Seamless and secure

Central to this partnership is HMS' unwavering commitment to delivering a seamless and secure user experience. Huawei has played a pivotal role by providing vital technical support to ensure the smooth integration of Mobily Pay into the AppGallery. This technical prowess guarantees that users can engage with Mobily Pay's services without any glitches, setting new standards for digital payment convenience. Moreover, Huawei AppGallery will actively champion Mobily Pay, elevating its visibility and accessibility in the KSA market. This strategic move will open doors for a broader audience, enabling even more Huawei users to experience the future of digital payments. The Managing Director of Huawei Consumer Business Group, Eco Development and Operation, KSA, William Hu, said: "This partnership exemplifies Huawei's commitment to delivering innovative solutions that improve the lives of our customers."

Strategic move

Hazem Alrashed, Vice President of Mobily Pay, said: "Our partnership with Huawei is a strategic move to bring Mobily Pay's

services to a wider audience. We look forward to offering Huawei users in KSA a seamless and secure digital payment experience." This groundbreaking partnership signifies the relentless pursuit of excellence in digital payment solutions. As HMS and Mobily Pay join forces, users across Saudi Arabia can eagerly anticipate an elevated mobile payment experience that combines cutting-edge technology with unbeatable convenience. The future of digital payments has arrived, and it's powered by HMS and Mobily Pay ushering in a realm of exciting developments in the world of mobile finance.

Omantel and Visit Oman Forge Strategic Partnership to Propel Digital Innovation in Oman's Tourism and Tech Sectors

VisitOman.om, Oman's digitally-native B2B inbound tourism portal built for the global travel industry, has signed a Memorandum of Understanding solidifying a strategic partnership with Omantel, the leading provider of integrated telecommunication services in the Sultanate of Oman. This alliance will significantly enhance the value proposition of Omantel's loyalty program, Makasib, providing customers with even more exciting opportunities to redeem their points for a variety of tourism and travel related experiences in Oman. Under this groundbreaking partnership, Visit Oman is set to launch a dedicated portal on its platform exclusively for Omantel loyalty customers where Omantel's Makasib points will be integrated into the Visit Oman booking platform, providing the opportunity for loyalty members to redeem live bookings with instant confirmation. This streamlined integration will facilitate a seamless redemption process for Makasib points, allowing loyalty customers to effortlessly use their earned points for an enriched array of Omani travel services and products curated by Visit Oman. The Visit Oman portal will feature unique rewards and special offers extended by local SMEs in the Oman tourism sector. This exciting initiative aims to foster growth and innovation among local businesses bolstering their development and promoting Oman's emerging tourism SME ecosystem on a national scale. Joint promotional activities will further enhance awareness and engagement surrounding the utilization of Makasib points and further enhance the visibility of Oman's rich cultural offerings and experiences through these special offers to loyalty customers. Eng. Aladdin Baitfadhil, Chief Commercial Officer of Omantel, expressed about this partnership: "Our collaboration with Visit Oman marks a new era in customer rewards. It is an unprecedented fusion of technology and tourism, designed to reward our loyal customers and promote local tourism businesses. Our customers are at the heart of everything we do at Omantel, and we are committed to providing them with innovative solutions that enhance their experience. By integrating Makasib points into Visit Oman's platform, we are taking our loyalty program to new heights, adding greater value to each point and making rewards more accessible than ever." Omantel is keen to extend the benefits of this partnership to its large customer base through a variety of communication channels. The company will continue its dedicated efforts to advocate for the utilization of Makasib points, underscoring the value of customer rewards and loyalty in its journey towards a connected future. The partnership with Visit Oman reaffirms Omantel's commitment to continually enhance the value it offers to its customers and stakeholders and propel Oman further into the digital future. Adding to the excitement surrounding this partnership, Mr. Shabib Al Maamari, Managing Director of Visit Oman, expressed his delight in a statement: "We are truly proud to partner with Omantel, a company that shares our vision of facilitating unforgettable experiences. This integration of Makasib points into our platform signifies a major advancement in our service delivery, offering an innovative way for Omantel's loyal customers to experience the best of what Oman has to offer." He further stated, "By providing a dedicated platform for the redemption of rewards from local SMEs, we are not only creating unique opportunities for Omantel's customers but also bolstering the growth of our local economy. Our partnership with Omantel is a testament to our commitment to drive technological innovation within the tourism sector and support Oman's journey towards a digital future." The partnership underlines Visit Oman's ongoing commitment to drive digital innovation in Oman's tourism sector and brings Oman's rich tourism offerings to Omantel customers' fingertips through a shared vision of fostering domestic tourism and empowering local SMEs. Shk. Talal Al Mamari, Chief Executive Officer of Omantel, and Dr. Hashil Al Mahrouqi, Chief Executive Officer of Omran Group, were both present at the significant signing, highlighting the collective commitment of key stakeholders in this landmark collaboration.

Zain Unveils Marketing Partnership with Red Bull Mobile

Continuing its journey to present the best service offerings to Kuwait's biggest family of subscribers, Zain today unveils its exciting new marketing partnership with Red Bull Mobile, bringing together Zain's unmatchable and superior telecom experience together with the adventurous world of Red Bull. This collaboration is set to unlock an incredible world of unlimited opportunities, where Zain leverages on its leadership in telecom and digital service offerings on Kuwait's most powerful 5G network, along with the energy and appeal of Red Bull, the globally renowned brand that connects with young people. Zain now offers specially designed plans to meet the needs of youth, while also giving them the chance to enjoy Red Bull's thrilling events and activities in Kuwait. Under this exciting partnership, Zain offers a number of flexible options for prepaid voice and internet services, including four ready-made plans designed to meet every customer's need, and a make-your-own plan option where customers can design their own unique plan. Additionally, customers can enjoy long-term perks like doubling and tripling benefits in the upcoming months and more. The new plans are available from any of Zain's digital and physical channels. This collaboration exceeds the traditional telecom experience, as it not only brings all-new service offerings to Zain customers, but also gives them the chance to be a part of Red Bull's limitless world of exciting experiences. The two partners are set to host events and sports programs in Kuwait. Zain continues to stay ahead of the digital curve, offering the latest innovative technologies and services to customers. Representing Kuwait's biggest family of subscribers, the company is always committed to meeting customer expectations and serving their aspirations to provide the best and most unique digital lifestyle experiences.

Zain Celebrates Summer Vibes with Customers At Al Khiran Mall

Zain recently held a special event at Al Khairan mall to celebrate the summer season, sharing vacation vibes with customers and mall visitors by organizing many exciting activities and interactive games. The event, through which Zain sought to connect with Kuwait's biggest family of subscribers, attracted large crowds of families and youth. Zain always stays active in the community by organizing unique events and entertainment programs that coincide with the most celebrated seasons and vacations in Kuwait. Through these events, the company adds its own touch and reflects its brand values (Zain, A Wonderful World) to keep close to its customers and the wider community, bringing them the best opportunities to create beautiful memories. This particular event came in collaboration with Wainkoum, the local creative house known for organizing out-of-the-box events and engaging activities that always gain popularity with the crowds. Zain has selected the newly opened Al Khiran mall for this event due to its unique location at the heart of Al Khiran area, where Kuwaitis usually spend their summer vacation near the waterfront, something that was well-aligned with the event's theme. The event featured many exciting activities, fun games, and memorable experiences that appealed to visitors of all ages, opening up the space for them to compete for the chance to win prizes from Zain. The company also distributed summer-themed giveaways, set up a photo booth, and held other fun activities that left a wonderful impression on everyone. Zain takes joy in interacting with its customers and being close to the community by supporting and organizing a wide variety of entertainment programs, projects, and more to enrich the local tourism scene. The company will always be keen on bringing joyful experiences to the Kuwaiti public to affirm its role as a leading national company.

AT&T and the United Way of Metro Dallas Help Bridge Digital Divide

AT&T and the United Way of Metropolitan Dallas have long shared a common vision: to connect those we serve to greater possibilities. We know when we help connect people to technology, it can be a bridge to opportunity. That's why we're contributing another $1 million over the next two years to the United Way of Metropolitan Dallas in support of the new Digital Bridges program focused on southern Dallas. This contribution adds to the $1.2 million we previously made to support the distribution of 2,000 free laptops, digital literacy training and technology help for residents served by the nonprofit. This new contribution will help the United Way add more community navigators in the southern Dallas community. Thousands of families will receive a laptop and assistance from a trained navigator who can provide digital literacy training to help with important tasks like enrolling in health care and the Affordable Connectivity Program, which can cover the cost of internet service for those eligible. We're joined in this effort by major contributions from Texas Instruments Foundation, the Richard and Mary Templeton Foundation and the Eugene McDermott Foundation. Together, we aim to deliver the benefits of connectivity in southern Dallas to those on the wrong side of the digital divide. Unfortunately, those who lack access to the internet are automatically excluded from many aspects of daily life – including access to job openings, online learning and education resources, digital health care and more. Across the nation, we are becoming increasingly reliant on digital technology. In fact, the National Skills Coalition reports that 92% of jobs in the U.S. require digital skills. The stakes have never been higher. According to research:

- 27% of adults with household incomes of $30,000 or less lack home broadband
- One-third of Americans lack basic digital skills; Black and Hispanic workers are overrepresented in this group.

Our goal is to change these numbers, but it takes collaboration to move the needle. Combining our digital divide efforts with the United Way of Metropolitan Dallas and other contributors means greater impact. And working with credible nonprofit organizations in the southern Dallas community means effective reach. We'll be working with community organizations, like the Puede Network, Jubilee Park and Community Center, libraries, and dozens of others to connect more of the underserved. Adan Gonzalez, the founder of Puede Network, knows all too well what it's like to live in the digital divide. He was raised in the South Oak Cliff neighborhood of Dallas and recalls applying for college using a borrowed laptop and Wi-Fi from a nearby restaurant. "I don't want another kid to have to sit on the curb of McDonald's to access the internet," Gonzalez says. "The Digital Bridges funding will give my organization the opportunity to reimagine what the learning space at our center will look like. Equipping kids with technology to explore and grow could provide endless opportunities." All told, the new Digital Bridges collaboration will touch more than 30,000 lives in the Dallas community by:

- Providing more than 4,200 computers to those in need.
- Creating computer labs in community-based organizations.
- Offering digital literacy training to nearly 3,000 individuals.

Helping more than 15,000 residents enroll in the Affordable Connectivity Program. We remain vigilant in tackling the digital divide in Dallas and nationwide through our AT&T Connected Learning® initiative, which helps people get computers and connectivity, gain skills to use the internet effectively, and embrace the internet so they can reap its vast benefits. This is how we build the bridge to possibilities. United is how we will get there.

AT&T and Pinoleville Pomo Nation Celebrate Opening of New Connected Learning Center to Help Bridge the Digital Divide

AT&T is opening a new Connected Learning Center inside the Boys & Girls Club of Pinoleville Pomo Nation in Ukiah to provide internet access and education tools to those who face connectivity barriers holding them back from participating in the digital world. In addition, AT&T has made a $50,000 contribution to the Boys & Girls Club for additional support of the center. The opening of the Connected Learning Center is part of AT&T's commitment to help bridge the digital divide in California, which includes investing into programs that help people and communities develop digital literacy skills to thrive in our modern world. This is the second Connected

Learning Center on tribal lands in the U.S., the sixth that AT&T has opened in California and is the 27th AT&T Connected Learning Center® nationwide. In all, we plan to launch more than 50 total centers across the country by mid-2024. The goal of the centers is to help connect more students and families through free access to the internet and computers, as well as educational resources that teach the skills needed to use it safely and responsibly. The Pinoleville Pomo Nation secures tribal government, affirms and protects tribal sovereignty and maintains government-to-government relationships. The Nation is dedicated to developing and maintaining co-operative alliances that benefit the Nation and local community. The Nation sees its community being healthy spiritually, physically, emotionally and mentally, and is committed to the preservation of its history, culture and traditions. The Nation provides for the health, safety and general welfare of its citizens, while promoting economic self-sufficiency and personal independence. Why is this important? Once they leave their school site, students on the Tribal Nations in the Ukiah region have limited access to the internet, computers or resources needed to benefit from the online world, part of the issue known as the digital divide. In fact, over 30 percent of the population on tribal lands do not have access to broadband infrastructure that provides minimally adequate speeds.1 AT&T is opening Connected Learning Centers across the nation with local nonprofit organizations that are already adept at supporting underserved populations within their community, including some of our nation's most vulnerable students and families. Across the Golden State, AT&T is investing in our networks, providing affordable high-speed internet and connecting Californians to greater possibility. In California, we invested nearly $8.6 billion in our wireless and wireline network infrastructure from 2020-2022.

Avaya Reports Positive Business Momentum Post Emergence

Avaya, a global leader in customer experience solutions, today reported strong market momentum for the months since the company's successful completion of its financial transformation in May 2023. Avaya has driven strong innovation for products actively in demand by customers, delivered financial progress, added key executives, and garnered third-party recognition of its business and leadership. Avaya's market momentum is built on a foundation of its global breadth, scale, brand, and ecosystem, with more than six million contact center agents utilizing Avaya solutions; greater than 90 million unified communications seats; an extended ecosystem of 4,000+ partners and 120,000 developers; and an unparalleled customer base that includes 90 percent of the largest US companies, including more than 90 governments, as well as each of the top 10 global airlines, auto manufacturers, and banks. Avaya added 599 new logos in the three-month period from April through June, along with 39 deals over $1 million total contract value, and four deals over $5 million. "Avaya is executing every day to take full advantage of the hard work done over the last year to transform our operations, business strategy, culture, and balance sheet, which is now a genuine competitive advantage," said Alan Masarek, CEO, Avaya. "We set the foundation for growth and have already seen our focus pay off. The revitalized Avaya is investing in and delivering next-gen technology with an 'innovation without disruption' approach embraced by customers and attracting the best talent as a destination place to work. Today's leading companies and organizations see the opportunity to differentiate and lead their respective industries through differentiated customer experiences by tapping into AI-powered cloud solutions from Avaya, and this is fueling customer momentum that we expect will only grow stronger in the months and years ahead."

Financial Performance Indicators Demonstrate Positive Momentum

Upon completing its financial restructuring in May, the company emerged in a position of financial strength, having eliminated the vast majority of its debt and significantly recapitalizing with fresh investment. Key financial metrics as of September 1, 2023, include:

- Cash and cash equivalents of greater than $600 million.
- Debt of approximately $830 million, which is 75 percent lower than pre recapitalization, and with no maturities due until 2028.
- An adjusted pro forma net leverage ratio of less than 1x.*

In another major step forward, today, Avaya filed the company's Annual Report on Form 10-K for fiscal 2022 and quarterly reports for the third quarter of FY22 and the first quarter of FY23 with the Securities and Exchange Commission. As a result of emergence from its financial restructuring, and as noted in the footnotes of today's filing, Avaya alleviated the substantial doubt that had previously existed regarding the company's ability to continue as a going concern. "We are extremely pleased to have fulfilled our remaining SEC reporting obligations, with no material impact to previously disclosed financial results for fiscal 2022 or prior periods," stated Amy O'Keefe, Chief Financial Officer, Avaya. "The recent recapitalization has positioned Avaya well with the financial flexibility to execute on our strategic growth plans."

AI-Powered Innovation, Customer Experience, and Cloud are Driving Customer Demand

Enabling cloud-based innovation deployed on top of existing communications investments is powering interest in Avaya among global customers, as many companies are migrating solutions to cloud but want to do so without disrupting

proven, successful on-premises systems. Avaya's approach to help customers move "at their pace" is resonating with customers and partners. Companies are increasingly seeing their contact centers at the tip of the spear for driving differentiating experiences for their customers. With AI innovation super-charging CX solutions, customers are turning to Avaya to help them bring massive innovation into their contact centers. As more customers are looking to ChatGPT and other generative AI technologies, they are seeking an integrator to bring it all together, with Avaya well-positioned to play that role often as the contact center incumbent. This interest was evidenced by strong customer and partner attendance at Avaya ENGAGE, the company's global customer conference held in June in Orlando, Florida. The event marked a successful return to in-person exhibitions of Avaya innovation, solutions, and its partner ecosystem, with almost 2,000 in-person registrants and approximately 3,500 virtual registrants, representing 104 countries attending 90 breakout sessions. At ENGAGE, Avaya made a series of solution and services announcements, including:

- Avaya Enterprise Cloud Enables Global Organizations to Future-Proof Communications
- New Avaya Integrations, Capabilities, and Alliances Empower Enterprises to Adopt Cloud "Their Way"
- Avaya Unveils Reimagined Professional Services, Prioritizing AI, Cloud, and Digital Transformation Through Avaya Customer Experience Services

Customer interest in these solutions is driving new client engagements and renewals, including: Victory Auto Group's 50 locations across the US, Acadia University in Canada, BNEXT, a fintech company in Spain; G-Star RAW, one of the most renowned clothing brands in the world; GRUPO LOMAS, a tourism services and property company in Mexico, the National Social Security Fund of Uganda; Ignite Telecom in Australia; select Canadian Tire stores, 28 locations of St. Mary's County Public Schools in Maryland, Walmart Mexico; TELMEX, a telecom leader in Mexico; Group Estrella Blanca, a leading Mexico transportation company; and Kura, a leading outsourcer of contact center solutions in the United Kingdom, among many others.

Key Executive Hires and Industry Recognition Among Avaya's Quarterly Accomplishments

During the quarter, Masarek refreshed his executive leadership team, part of his efforts to drive Avaya's strategy and operations, and an indicator of success in efforts to establish Avaya as a destination place to work. The company announced three C-suite executives in key roles joining with extensive experience at leading brands, including Amy O'Keefe, Chief Financial Officer; Omar Javaid, Chief Product Officer; and Josh Mueller, Chief Marketing Officer. The company also announced Sagi Dudai as a Board Advisor to bolster its cloud engineering efforts.

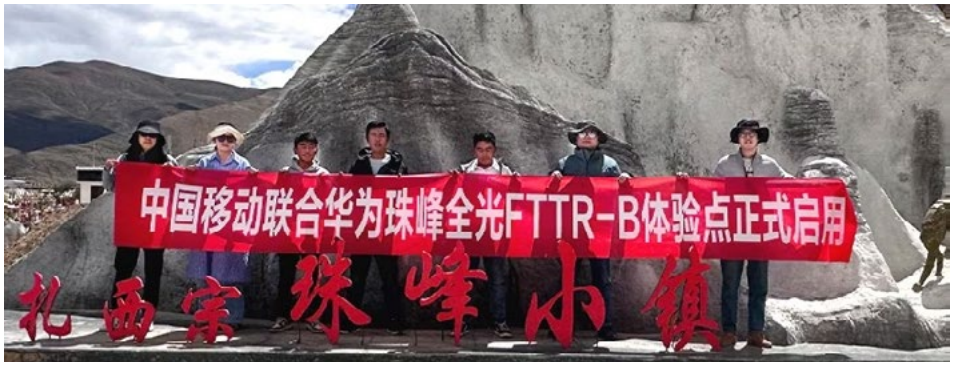
A variety of third parties have recently recognized Avaya's momentum and leadership:

- In June, Avaya received two Stevie Awards (American Business Awards) for both Emerging Technology (for Avaya's media processing core) and for its Avaya Experience Platform for the Customer Service Solution category.
- In July, CEO Masarek was named as the UC Leader of the Year for leading Avaya's business and financial transformation by UC Today.
- In July, the NORNS Awards highlighted Avaya for its work with AI in the Contact Center.
- In July, Avaya was given the Readers' Choice Award for the Avaya Cloud Office from Connect Professional: Cloud Telefonie Awards.
- In July, Avaya was awarded Gold in Brandon Hall Group's Human Capital Management awards in the category of Best Use of Video for Learning for the Avaya Experience Platform™ for Agents and Supervisors.

China Mobile International

China Mobile Teams Up with Huawei to Deploy the First FTTR-B Network on Mount Everest

Recently, China Mobile Communications Corporation Co., Ltd. (China Mobile) and Huawei have successfully deployed an FTTR-B network for the tourist base camp and hotel on Mount Everest [Tibetan name: Mount Qomolangma]. Based on Huawei FTTR-B (Fiber-to-the-Room Business) solution, China Mobile provides ultra-gigabit premium Wi-Fi services for staff and tourists at the top of the world, meeting their daily communication and business requirements.



China Mobile teams up with Huawei to deploy FTTR-B network

At the management office of the tourist camp 5,200 meters above sea level, staff need to check environmental protection devices, send back high-resolution photos and videos, and log to the Mount Everest Administration Bureau every day. Due to poor network conditions, problems such as frame freezing, slow video upload, and document sending failures used to occur frequently. The high-speed FTTR-B network

that has been successfully deployed fundamentally changes network conditions, allowing all staff in the tourist base camp and tourists in nearby rest areas to enjoy premium Wi-Fi services. In addition, the FTTR-B solution has been deployed in a tourist hotel in a nearby town 4,200 meters above sea level. In the past, network problems such as frame freezing, no network connection, and slow response of the check-in system would occur from time to time, affecting guests' check-in experience. Since the FTTR-B solution is deployed, up to 300 hotel guests can access high-speed Internet at the same time, and hotel reception staff can do their job much more smoothly.

Huawei FTTR-B device

The FTTR-B solution was jointly launched by China Mobile and Huawei to provide ultra-gigabit all-optical networking for small- and medium-sized enterprises (SMEs) in China. The solution is widely used in hotels and shops. Huawei FTTR-B devices feature flexible triple-mode antennas and can be installed on ceilings or walls to provide full Wi-Fi coverage in indoor areas, enabling users to enjoy premium network experience anywhere. The solution uses power over fiber (PoF) cables to transmit signals and supply power to devices at the same time, resolving problems of difficult power acquisition. In addition, the WeFTTR app provides functions such as network topology management, one-click network optimization, and self-service network configuration for IT staff in management offices and hotels, reducing O&M workload. O&M engineers of China Mobile can also use the app to remotely locate network problems, improving the O&M efficiency. In 2024, China Mobile will work with Huawei to extend the FTTR-B solution to the climber base camp. This will enable climbers to enjoy gigabit network services as they get ready to reach the top of the world. As a leading global ICT infrastructure provider, Huawei has carried out extensive cooperation with operators such as China Mobile and helped many SMEs to realize digital transformation through innovative solutions such as FTTR-B. In the future, Huawei will continue to cooperate with China Mobile to build gigabit optical networks using innovative technologies.

Cisco and Nutanix Forge Global Strategic Partnership to Simplify Hybrid multicloud and Fuel Business Transformation

Cisco, the leader in enterprise networking and security, and Nutanix, Inc., a leader in hybrid multicloud computing, announced a global strategic partnership to accelerate hybrid multicloud deployments by offering the industry's most complete hyperconverged solution for IT modernization and business transformation. IT organizations continue to face significant operational hurdles and urgent sustainability and security concerns as a result of increasing multicloud complexity. This new partnership answers these challenges by simplifying and accelerating the delivery of infrastructure and applications, at a global scale, through best-in-class cloud operating models, unparalleled flexibility, and automated resiliency with industry-leading customer support. "Customers are asking for solutions that are simple, sustainable, and future-ready," said Jeremy Foster, senior vice president and general manager, Cisco Compute. "This partnership answers with a complete solution spanning virtual compute, networking and storage across customer data centers and public clouds. By combining Cisco's award-winning SaaS-managed compute portfolio with Nutanix's market-proven cloud platform software, we can help customers develop a balanced approach to power modern workloads on-prem and in the cloud." "As organizations look to keep up with the pace of innovation, they need an integrated hardware and software platform to support application deployment anywhere," said Tarkan Maner, chief commercial officer at Nutanix. "This partnership will deliver an expanded market opportunity for both organizations as they tackle the challenges of standardizing, simplifying, and securing environments across the data center, in public cloud and the edge." The new offering integrates Cisco's SaaS-managed compute and networking infrastructure (Cisco Unified Computing System with Cisco Intersight) with the Nutanix Cloud Platform (Nutanix Cloud Infrastructure, Nutanix Cloud Manager, Nutanix Unified Storage, and Nutanix Desktop Services) and will be sold by Cisco using its extensive go-to-market reach. Customers will benefit from a fully integrated and validated solution that is sold, built, managed and supported holistically for a seamless end-to-end experience. The solution will offer flexible deployment options with support for Cisco UCS rack and blade servers, including initial support for C-Series Servers and planned, future support for UCS X-Series, winner of the 2023 SEAL Sustainable Product of the Year Award and CRN's 2023 Tech Innovator Award. The new offering will integrate advanced Cisco servers (UCS), networking and security (ACI), and management (UCS Manager, Intersight) with the Nutanix Cloud Platform software. The Nutanix Cloud Platform provides a consistent cloud operating model with a single platform for running applications and data across data centers, edges and public clouds. To best support application deployments, from mission critical workloads to AI-driven innovation, performance and capacity scale linearly, resilience is delivered from the ground up with self-healing nodes, and persistent storage is natively integrated. Following today's announcement, Cisco and Nutanix will enable their global sales teams and partners worldwide to offer an exciting new solution combining best-in-class technologies and collaborative go-to-market support, driven by the Cisco team. Solution availability is expected in the next 90 days.

Link Net Taps Cisco and Qwilt to Boost Capacity and Improve Streaming Services

Indonesian fixed broadband and IPTV provider Link Net (First Media) is partnering Cisco and cloud firm Qwilt to increase its network capacity and improve streaming services in over three million homes via a new content delivery network (CDN) solution. Under the tie-up, Qwilt is installing its Open Caching-based architecture into the ISP's network edge, initially in 27 cities across Indonesia, allowing for increased data volumes across its network. Ultimately the plan is to deploy the world's 'largest federated CDN'.

Eutelsat-OneWeb Merger Receives Regulatory Clearance

Having received 'all relevant regulatory clearances' for its proposed combination with OneWeb, Eutelsat Communications has convened an Ordinary and Extraordinary General Meeting of its shareholders to be held on 28 September 2023. The enlarged entity has also unveiled its new executive team, which will bring together senior leaders of both companies, under the leadership of CEO Eva Berneke. The combination of Eutelsat and OneWeb will create a leading global player in satellite connectivity, the two parties have stated. The French-backed Eutelsat and UK-based OneWeb signed a Memorandum of Understanding (MoU) to merge in an all-share transaction in July this year. The transaction will be structured as an exchange of OneWeb shares by its shareholders (other than Eutelsat, which acquired an initial equity stake in April 2021) with new shares issued by Eutelsat. As such, at closing Eutelsat will own 100% of OneWeb (excluding the 'Special Share' held by the UK government). OneWeb shareholders will receive 230 million newly issued Eutelsat shares representing 50% of the enlarged share capital.

Huawei Opens Cloud Facility in Saudi Arabia

Huawei opened a cloud data center in Saudi Arabia to improve various services across industry verticals, with plans to promote digital training and business opportunities in line with the country's digital transformation goals. In a press release, Huawei stated the cloud facility is located in Riyadh and it will focus on providing secure and reliable cloud services in the Middle East, Central Asia and Africa. In total, the site is expected to aid the company in launching 68 new services around AI, cloud and big data. The facility will provide full stack cloud offerings spanning infrastructure, databases to AI services to meet industry demands, and there is a plan for the vendor to utilize its Pangu 3.0 model for various sectors in the

country including government, finance and manufacturing. Huawei added the Riyadh cloud region will cover all existing networks powered by operators Zain, stc and Mobily. Further, the vendor cited a plan for China and Saudi Arabia to explore other business opportunities and help Chinese enterprises connect with local stakeholders. It also pledged to train 200,000 developers in Saudi Arabia in the next five years, alongside launching a program for 2,000 startups and joint opportunities with 1,000 local partners. The launch of the cloud region in Riyadh builds on an MoU struck in end-2022 by Huawei and the Saudi Arabian government, which aimed to increase investments in the country's cloud infrastructure.

Huawei Releases Data Center 2030, Leading Innovation and Development of New Data Centers

The Data Center 2030 report was released by Huawei at HUAWEI CONNECT 2023. Aiming to guide the innovative development of the industry, the report shares insights into the future of data centers, defines key features involved, and proposes a new reference architecture. With the intelligent era around the corner, computing power has become the top requirement and data centers the key infrastructure. Over the past three years, Huawei communicated with more than a hundred scholars, customers, partners, and research institutes regarding the future of data centers, and has held over 50 workshops. The collective wisdom of industry experts both in and outside Huawei on the matter was then condensed into the report. Michael Ma, Vice President of Huawei and President of the ICT Product Portfolio Mgmt & Solutions Dept, released the Data Center 2030 report on behalf of Huawei and delivered a keynote speech entitled "Exploring the Future of Data Centers to Lead the Intelligent Era". Mr. Ma pointed out that the computing power requirements are expected to grow so fast they will outpace even Moore's Law while at the same time the growth of computing power is subject to limited resources. To cope with this contradiction, continuous innovation to improve efficiency will become the core direction of data centers in the future. The industry will embrace a new round of transformation. Michael Ma, Vice President of Huawei and President of the ICT Product Portfolio Mgmt & Solutions Dept, released Data Center 2030. With a focus on the core conflict between computing power requirements and resource constraints, Data Center 2030 describes five future scenarios that will affect data center development over the next decade, and proposes an innovative integration of energy, computing, transmission, data, and operation efficiency. The report defines for the first time in the industry six key technical features of future data centers, and systematically explains the development challenges as well as breakthrough directions for cloud service, computing, storage, network, and energy technologies involved in data centers. Data Center 2030 also proposes a reference architecture for new data centers and quantitatively predicts the future prospects of data centers based on 22 indicators and forecast data. Many prominent guests were invited to deliver speeches at the event. Joe Weinman, a digital strategist, He Baohong, director of the Cloud Computing and Big Data Research Institute of the China Academy of Information and Communications Technology (CAICT), and Hui Tao, director of Huawei ICT Strategy & Planning and Business Development Dept, all shared their ideas and practices with reference to the future of data centers. Huawei looks forward to working with customers and partners around the world to promote the high-quality development of global data center infrastructure and contribute to the intelligent transformation across industries.

Nokia Rolls Out Interleaved Passive Active Antennas for Globe Telecom Across the Philippines

Nokia announced that it is deploying its state-of-the-art, modular Interleaved Passive Active Antenna (IPAA+) for Globe Telecom, Inc, across the southern islands of the Philippines. The move will help to accelerate 5G deployment in the region. Nokia's advanced IPAA+, has a light, modular design and supports all 5G frequency bands in a single compact antenna including the 2.6 GHz spectrum band. Nokia's IPAA+ inherently has the capability to support other bands, which means investments are protected. They will enable Globe Telecom to accelerate and simplify 4G/5G rollouts, while also delivering higher level of network efficiency and performance, as well as faster return on investment. Service providers face the challenge of finding additional space on towers and rooftops to add 5G antennas. Nokia's IPAA+ accelerates the deployment of 5G by addressing this physical issue. Nokia's new IPAA+ is the size and weight of a standard multiband antenna and makes it easier and faster for service providers to deploy their 5G networks through just a simple antenna swap. Combining the 4G passive and 5G active antennas together into a compact solution can also help lower site rental costs and make the acquisition of sites faster. Nokia and Globe's engineering team also successfully trialed a Globe Telecom-specific variant of the IPAA+ in the field. The field test was carried out in Tantangan, South Cotabato in the island of Mindanao, making Globe Telecom the first operator in the world to successfully test the 2.6 GHz IPAA+ variant. Joel Agustin, SVP and Head, Network Planning and Engineering at Globe Telecom, Inc said: "We are thrilled that Nokia's state-of-the-art products will be deployed in the Philippines. Our enduring pain points in site acquisition and TCO efficiency are being addressed by the features and design of the IPAA+. Simplifying the rollout of 4G and 5G services will greatly improve our customer experience especially in the southern region of the Philippines." Jeciel Nuyda, President at Nokia Shanghai Bell Philippines, said: "We are delighted to partner with Globe Telecom on this deal that will see our state-of-the-art IPAA+ products being deployed in the Philippines. These products are lighter, more modular and cover all sub-6GHz 5G frequency bands. We look forward to collaborating closely with Globe on this important deployment."

Nokia Selected as Rural Broadband PON Solution for Mediacom Communications

Nokia announced that Mediacom, the 5th largest cable operator in the United States, is building PON networks to provide multi-gigabit broadband service to rural, underserved communities. Fueled partly by state and federal grant projects, Mediacom will leverage Nokia's XGS-PON systems and equipment, to support new geographical serving areas. Mediacom, which offers broadband to 3.3 million homes and businesses in 22 states, will deploy Nokia's chassis-based Optical Line Terminals (OLTs) and node-based OLTs. The chassis-based solution will be used in small, non-conditioned cabinets, while the node-based will be installed on strands or utility poles and capable of sustaining harsh outside plant environments. J.R. Walden, Senior Vice President Technology and CTO at Mediacom said: "Nokia is supplying Mediacom systems that deliver up to 25G PON today. Their platforms effectively support our services while allowing for future growth and expansion that will help Mediacom remain both a market and industry leader in advanced, high performance data services." David Eckard, VP of Broadband Partners at Nokia, said: "The United States is committed to ensuring that all Americans have access to the highest quality broadband services. Mediacom's ambition to connect Rural America is critical to help bridge the digit divide in our communities, and Nokia is proud to have been selected as its partner. Through our onshoring of critical 10G fiber solutions and optical modules to the United States, Nokia will be ready to support operators seeking funding, and to connect more people, sooner. Jaimie Lenderman, Research Manager & Principal Analyst at Omdia, said: "Cable operators are increasingly deploying FTTH for both greenfield and overbuild with next-generation PON technologies, such as XGS-PON and 25G-PON, because of their inherent energy efficiency and almost unlimited scalability, underscoring the MSO green networking strategy." According to Dell'Oro, Nokia is the largest provider of XGS-PON globally. In addition, seven out of ten homes in the USA with fiber are served using Nokia equipment.

Nokia to Build Innovation Lab in Dubai

Nokia unveiled plans to open an innovation lab in the UAE as part of wider ambitions to deepen its cloud RAN push in the Middle East and Africa while boosting the adoption of AI and other technologies across the region. The Finnish vendor stated the laboratory will complement existing collaborations with Dell Technologies and Hewlett Packard Enterprise (HPE) to develop new innovations around cloud RAN and strengthen its own portfolio, pointing to its anyRAN software which is compatible with any cloud server or hardware. There is a further plan to combine Nokia's software with Dell's cloud platform to improve the performance of open network architectures, as well as to deploy HPE's hardware for Nokia's accelerator cards. Tibor Fabry-Asztalos, SVP for product development engineering and telecom system business at Dell said the partnership will aid "network operators digitally transform and quickly bring innovative and revenue-generating solutions to the market". Nokia added it will work with other market-leading hyperscalers to encourage the "flexibility of choice of technology suppliers and operating environments". The Dubai facility will also target new use cases around smart and connected industry, and Nokia stated its MX Industrial Edge platform can aid local enterprises accelerate the shift to Industry 4.0. Network optimization through the use of AI and machine learning will also be a key focus at the laboratory.

Oman Broadband's CEO: Adhering to ISO Standards is a Transformative Step Towards Long-Term Success

Oman Broadband company has obtained international recognition from International Organization For Standardization by receiving three ISO certifications, through which it approves the accomplishment of a comprehensive management system. The QHSE team in the Division of Enterprise Performance made that achievement, and it enhances the core values of the institution represented in reliability, efficiency, cooperation, responsibility, and innovation.The company has received ISO 9001:2015 Quality Management System Certification, ISO 45001:2018 Occupational Health and Safety, and ISO 14001:2015 Environmental Management System. This international recognition reflects the commitment of Oman Broadband to international standards and demonstrates its excellence, sustainability, and stakeholder confidence. Obtaining these prestigious certifications accentuates the company's firm commitment to provide outstanding service and maintaining a safe, healthy, and sustainable work environment, and is also another notable achievement that boosts Oman Broadband's position in ITHCA Group and the ICT sector.

NEW CERTIFICATION

Obtaining ISO 9001:2015 Quality Management System Certification is an acknowledgment to the company's commitment to a customer-centered, quality assurance and continuous improvement approach. This certification is also evidence of the continuous pursuit of efficiency and reliability in all business operations. Attaining ISO 45001:2018 Occupational Health and Safety is a global standard for health management systems and occupational safety, demonstrating the company's commitment to providing a safer and healthier work environment. It also emphasizes responsibility towards employees, stakeholders and society overall. ISO 14001:2015 certification for the environmental management system, confirms the dedication to managing environmental responsibilities effectively, in line with the company's commitment to sustainability. In this respect, Eng. Sultan bin Ahmed Al Wahaibi, CEO of Oman Broadband,

assures the numerous implications of these achievements, as it enhances the company's reputation and prioritizes quality, health, safety, and environment. Such achievements can distinguish us in a vital and competitive sector and would lead to improving operational efficiency, through the alignment of our operation with ISO standards, Al Wahaibi added. He noted that the company can also identify areas of improvement and implement strategies to reduce costs and enhance productivity. The operational efficiency would probably enhance customer satisfaction and loyalty, as these certifications will guarantee adherence to the sector's legal requirements and regulations. Al Wahaibi mentioned that the certifications not only reduce the risks of legal cases, but also illustrate to stakeholders that we are a trustworthy and reliable partner.

Transformative Journey

Al Wahaibi said that adherence to ISO standards is not just a mere operational change, but a transformative step towards long-term success as well. By incorporating these standards into our daily work, we ensure that every part of our organization, from administrators to frontline staff, works in line with internationally recognized best practices. This is perfectly consistent with our core values: reliability; where we continuously provide excellent service, efficiency; whereby we are constantly improving our operations, cooperation as we work together to achieve a common perspective, responsibility; since we are prioritizing health, safety, environmental sustainability, and innovation as we unceasingly seek new methods to reinforce quality and performance, Al Wahaibi illustrated.

Looking Ahead

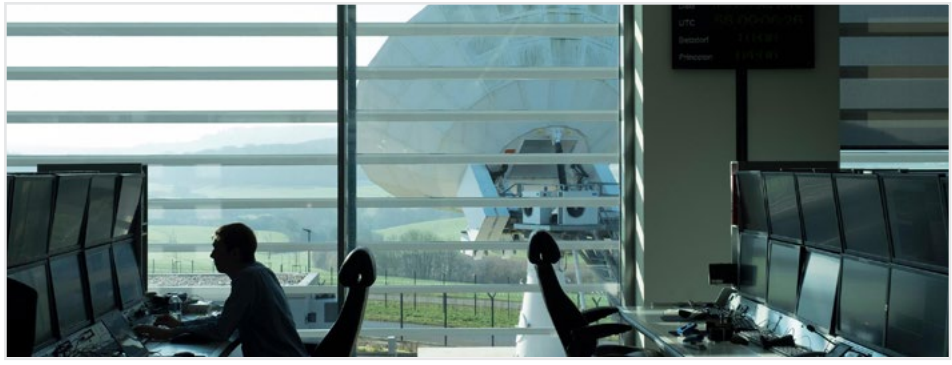
Oman Broadband CEO added that obtaining ISO certifications is a milestone, but it is not our final destination, and it marks the beginning of the journey of continuous improvement with ongoing audits and evaluations, to ensure that we are at the forefront of international standards. "We look forward to facing the challenges and embracing the opportunities offered by this journey with more than 12 certified auditors of integrated management systems who have made an active and critical contribution to this achievement", the CEO said.

Mexico's CFE TEIT Taps SES's Mobile Backhaul Service via SES-17 to Boost Digital Inclusion

Expanding on a partnership committed to close the connectivity divide across Mexico, CFE Telecomunicaciones e Internet para Todos (CFE TEIT) and SES today announced the delivery of voice and data services enabled by SES's Mobile Backhaul solution to 400 underserved, remote villages and communities across the country via the very high throughput SES-17 Ka-band satellite. With the common goal of supporting the efforts of the Mexican Government to bring greater connectivity to remote, hard-to-reach locations, CFE TEIT is leveraging SES's turnkey mobile backhaul service to deliver 2.2 Gbps to hundreds of thousands of residents living across the 400 sites. The mobile backhaul solution will enable rural communities to access 4G network services for the first time, paving the way for mobile commerce and economic growth in the years to come. SES's Mobile Backhaul service via SES-17 and other HTS satellites is playing an integral role in delivering 4G and 5G services to users across the Americas. Over the next four years in both rural and urban areas across Latin America, an estimated 57 million in Latin America will access 4G or 5G for the very first time. "As technology continues to advance, the demand for increased connectivity via both broadband and mobile networks is growing exponentially. At SES we are committed to supporting our partners and making our experience and technology solutions available to CFE TEIT to achieve greater digital inclusion throughout Mexico. SES-17's Mobile Backhaul service will connect 400 underserved sites across the country and enabled CFE TEIT to deliver 4G services for the first time among the communities," explained Omar Trujillo, Vice President of Enterprise Americas at SES. "We are thrilled to once again support Mexico's efforts to bring reliable broadband services at everyone's fingertips. It is very impressive to see the tremendous impact of the government's innovative approach to digital inclusion where CFE TEIT directly brings 4G to rural areas in large scale and in a short timeframe." Earlier this year, SES and CFE TEIT announced plans in March to deploy more than 1,100 broadband hotspots, as part of Mexico's federal government initiative called Internet para todos (Internet for Everyone), which delivers free Internet access in thousands of public areas via SES-17. The multi-year collaboration will expand the federal agency's reach into unconnected and underserved communities, where high-speed broadband and mobile 4G network access will drive new exciting opp

SES Space & Defense Awarded U.S. Air Force Research Laboratory Contract to Support DEUCSI Program

SES Space & Defense, a wholly-owned subsidiary of SES focused on delivering satellite network solutions for the U.S. Government, has been awarded a multi-year contract by the U.S. Air Force Research Laboratory (AFRL) to conduct a series of tests to integrate space broadband services across a multi-orbit satellite network in support of the Defense Experimentation Using Commercial Space Internet (DEUCSI) program. This announcement by AFRL is the third award under the DEUCSI CALL 003 Program seeking experimentation for use cases in the Arctic region and airborne communications. The DEUCSI program is intended to establish communications with military platforms via multiple commercial space internet (CSI) constellations in Geosynchronous Orbit (GEO), Medium Earth Orbit (MEO), and Low Earth Orbit (LEO) utilizing a common user terminal with the ability to alternate between space broadband providers. As the industry's leading COMSATCOM integrator, SES Space & Defense will demonstrate multi-orbit, multi-band solutions that seamlessly switch among commercial space broadband services in different frequency bands to access favorable spectrum or failover between constellations. In doing so, SES Space & Defense will leverage common hardware elements to communicate with commercial space broadband constellations and military communications systems to provide greater flexibility in communication paths while minimizing the deployment of constellation-specific hardware. "An integrated multi-orbit, multi-band satellite architecture is a requirement in today's contested and congested environment for a network-centric military," said SES Space & Defense Senior Vice President of Space Initiatives, Jim Hooper. "The DEUCSI program is a great example to showcase SES Space & Defense's multi-orbit, multi-band holistic approach to deliver seamless interoperability to the U.S. Air Force to achieve unparalleled situation awareness and strategic advances for mission success."



stc Sponsors the 'Future Leaders Program' in Collaboration with the Youth Public Authority

Kuwait Telecommunications Company – stc, a world-class digital leader providing innovative services and platforms to customers, enabling the digital transformation in Kuwait, announced its sponsorship of the "Future Leaders Program" organized by the Youth Public Authority. stc's sponsorship of the program falls under the Company's 'upgrade' initiative which aims to contribute towards empowering the youth and supporting local educational initiatives. The 'Future Leaders Program' aims to inspire young participants between the ages of 11-17 to instill a set of professional skills that would later assist them in excelling within their chosen career paths. It has been designed to educate Kuwaiti students in the 12th grade of both public and private schools who meet the Ministry of Higher Education's scholarship criteria. The program is the first-of-its-kind in Kuwait, as it seeks to prepare the students to qualify for various positions, therefore enhancing the employment rate of young nationals. Those enrolled in the program were exposed to methods on developing positive behavioral habits, effective planning, building leadership skills, and fostering charismatic qualities. Sessions held under the program were organized at various youth centers throughout Kuwait, where stc distributed gifts to all participants. Participants received several certificates after each stage, including a training course completion certificate, a field project accomplishment certificate, a certificate of membership in the "Future Leaders Program", and "Train the Trainer" certification. The organizing committee also presented commendation plaques for distinguished projects. As the main sponsor, stc played a pivotal role in the program. Anfal Al-Kandari, Public Relations and Social Media Specialist at stc, contributed by delivering a presentation on the significance of community engagement through the company's official communication channels. stc's participation in the program is in line with its commitment to education, a key pillar of its extensive corporate social responsibility (CSR) program. As part of its 'upgrade' initiative, stc focuses on supporting the youth within the community to enable a brighter and more prosperous future. Through several initiatives coordinated under the "upgrade" program, stc actively

works to support the local education sector. Some of its initiatives include forging strategic partnerships with various government and private organizations, such as "dawrat," to facilitate education and deliver valuable online content to the community. stc also launched the "inspireU" business accelerator in Kuwait, the first of its kind, which aims to empower and expedite the growth of small and medium-sized enterprises and startups. Moreover, the Company's active participation in numerous job fairs in collaboration with various Kuwaiti universities demonstrates its unwavering commitment to attracting young Kuwaiti talent. Commenting on the sponsorship, Danah AlJasem, General Manager of Corporate Communications at stc, said, "At stc, we firmly believe in the potential of the youth to shape a better future for Kuwait. We believe that it is essential to hold programs that can enhance the qualifications of members within our community and bread future leaders. By sponsoring the 'Future Leaders Program', we are providing young minds with the necessary tools and guidance to unlock their potential and drive change in their lives and the community. As a Company deeply rooted in our community, stc is dedicated to creating positive change and fostering the talents of the next generation." AlJasem added, "We firmly believe that businesses and institutions have a responsibility to give back to the community they serve. In this regard, and on behalf of stc, I would like to thank the Youth Public Authority and all those who played a role in bringing this unique program to light. stc strives to become an active agent of positive change in Kuwait, empowering the youth and supporting their ambitions for a brighter future." Waleed Al-Ansari, Director of the Volunteer Work Department at the Kuwait Youth Public Authority, said, "We are delighted to have stc as a key sponsor for the 'Future Leaders Program.' Their commitment to empowering the youth aligns perfectly with our vision for creating a thriving and dynamic future for Kuwait. Together, we aim to nurture a generation of confident, skilled, and socially responsible leaders. AlAnsari added, "Our mission is to empower and uplift the youth of Kuwait, enabling them to thrive in every aspect of life. We are dedicated to creating opportunities, fostering talents, and supporting the aspirations of our young generation. Through strategic partnerships and impactful programs, we strive to shape a brighter future for Kuwait by developing and nurturing a generation of youth leaders who are the backbone of the economy. Together, we are building a dynamic community that embraces the potential of our youth and invests in their success.

stc Bahrain Hits 10Gbps Speeds During First Live 5.5G Trials

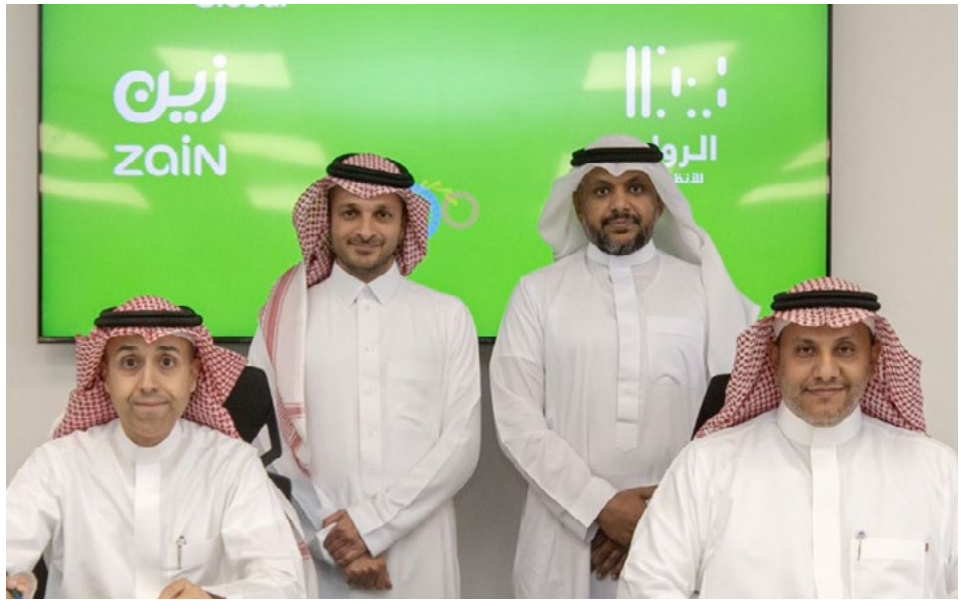
stc Bahrain has announced the successful completion of 5G-Advanced (5.5G) trials in the MENA region. The live demonstration was showcased during the 31st Arab Spectrum Management Group (ASMG), utilizing the upper 6GHz frequency range (400MHz bandwidth) for 5G-Advanced, made available through the Telecom Regulatory Authority's (TRA's) innovation license. The operator claims a data transfer speed of over 10Gbps was achieved during the initial phase of testing. Commenting on the development, stc Bahrain CEO Nezar Banabeela said: 'We are excited with what we have witnessed so far and the potential it has to complement existing 5G networks with new data transfer speeds, low latency, and network reliability. This is just an initial breakthrough as we continue to research and test similar technologies and set new industry benchmarks.' stc Bahrain launched 5G broadband fixed wireless access (FWA) services in selected areas in June 2019 and introduced mobile data plans for post-paid and pre-paid customers the following month, supporting speeds of up to 1Gbps. The network's footprint was extended to 50% of Bahrain's territory by January 2020, with maximum data transfer speeds increased to 1.2Gbps, and now covers around 100% of the Kingdom.

Tech Mahindra Launches Generative AI Powered Ops amplifAIer, a Digital Assistant for IT support Engineers

Tech Mahindra, a leading provider of digital transformation, consulting, and business re-engineering services and solutions, announced the launch of 'Ops amplifAIer' solution under TechM amplifAIer-suit of AI offerings and solutions. The solution will amplify the productivity of support engineers by providing a single pane integrated view with all the contextual information and tools to resolve issues. It will also enable team collaboration and generative AI assistance capabilities and make the processes future-proofed in a responsible manner. Tech Mahindra's Ops amplifAIer solution integrates with existing ITOps tools to collect the contextual information related to an IT ticket/alert and uses generative AI to analyze the collected data. It further identifies the probable root cause, diagnose, recommend remediation actions, and generate the corresponding automation scripts. The solution comes with an enterprise automation catalogue that enables the reuse of automation artefacts like scripts or workflows across the enterprise. Hasit Trivedi, CTO – Digital Services and Global Head - AI, Tech Mahindra, says, "Enterprises have a system for every team such as the HRMS for HR, FMS for Finance, CRM for sales, etc. But there is no single system focused on IT support engineers. While there are multiple ITOps tools and each of them has core strengths, but they lack completeness and hence, support engineers must log into multiple tools and toggle between them numerous times to analyze and resolve the tickets. Enterprises are looking for technology that addresses modern workplace issues quickly to accelerate value and bring efficiency. With our know-how of customer context and in-depth expertise in AI technology, we developed Ops amplifAIer to accelerate the automation of complex IT processes. Our Ops amplifAIer solution is designed by putting the support engineer at the center. It enables them to analyze and resolve issues faster with generative AI assistance." In addition, Ops amplifAIer enables collaboration between team members and a generative AI chatbot for assistance. The solution also attempts to protect enterprise IT knowledge like workflows/scripts from being bound to vendor-specific platforms and tools. The unified operations console reduces the need for IT support engineers to log into multiple ITOps tools. The contextual data collected allows generative AI to perform most of the activities that a support engineer does today. With Tech Mahindra's distinctive investments in the AI space, comprehensive knowledge of customer needs, and expertise in fostering digital transformation within the enterprise. Ops amplifAIer will drive unprecedented efficiency in enterprises, being agnostic to work in any type of organization to eliminate the complexity from everyday work. The launch of generative AI-powered Ops amplifAIer is in line with Tech Mahindra's continuous endeavor to transform enterprises with advanced AI-led offerings and solutions, along with its recent addition of Email amplifAIer, Enterprise Knowledge Search offering, Evangelize Pair Programming and Generative AI Studio.

Zain and Pioneers Systems Agreement to Develop IoT Solutions

Zain Saudi Arabia and Pioneers Systems have inked an agreement to develop IoT solutions, manufacture specialized products locally, and support the Kingdom's capabilities to achieve sustainable digital services innovation. Saudi-based Pioneers Systems' CEO Subhi Alghamdi stated: 'Having already achieved remarkable milestones in localizing the production of point-of-sale devices and medical respirators, our cooperation with Zain will open the door wide for us to work together in localizing innovation in the telecommunications and digital services sectors through developing and manufacturing advanced electronic products for advanced applications such as the Internet of Things, Artificial Intelligence, and more.'



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

SECURITY, NO COMPROMISE

HUAWEI

ARTICLE

5G and Beyond: The Middle East's Journey to a Connected Intelligent Future

In the fast-evolving world of telecommunications, 5G technology undeniably claimed the spotlight. The 5G promises not only faster connectivity but also promises a new age of infinite possibilities, transforming the way we connect, communicate, and even perceive our digital surroundings. The impact of 5G is not just about speed; it's about a more interconnected and responsive digital world.

Remarkably, the Middle East has not only kept pace with the technological wave but has also positioned itself as a nucleus of this evolution. Steeped in historical richness and diversity, the region has done more than just tap into 5G's potential. Since the initial rollout of the 5G network in 2019, the Middle East has seen over 24 million 5G users, and 2.5 million 5G home broadband users utilizing fixed wireless access (FWA). It has become a shining example of innovation and commercial success. A testament to its forward-thinking is its achievements in Fixed Wireless Access (FWA). While FWA – which offers internet connectivity through wireless networks rather than traditional cables – is not new, its relevance has grown in the 5G era. Many regional telecom giants now view FWA not as a mere option, but as a pivotal revenue cornerstone, reshaping their business paradigms and growth blueprints.

However, technology evolution never stops, even as the world is still getting acquainted with the fantastic capabilities of 5G. There are waves of the upcoming 5G Advanced or 5.5G technology. Having among the leaders of first wave deployment, and seeing the benefits of innovative development, the operators in the middle east region are paving the way towards the 5.5G era, aim to make it a reality in the next two years.

In tandem with these advancements, we are also seeing the emergence of exciting new digital services transitioning from concepts to reality. Such as naked eye 3D, which allows for three-dimensional visual experiences without the need for special glasses; XR, an umbrella term for augmented, virtual, and mixed realities; Redcap and Passive-IoT, are all pushing the boundaries of smart services what's possible. These innovations demand networks that are not just faster in speed, but also intelligent and more resilient. They challenge our existing infrastructures and compel us to envision a future that's not just connected but hyper-connected. It's a future where the lines between the digital and the physical blur, leading us towards the promising and awe-inspiring prospects of a 10G society.

Anjian
President Middle East & Central Asia
Carrier Business Group
Huawei

Central Asia, with its expansive landscapes and rich history, is on the brink of experiencing a significant surge in 5G implementation, marking the second wave of 5G deployment. This region is rapidly emerging as a hub for digital innovation. The Middle East, having pioneered 5G adoption in its region, holds a valuable position to provide guidance and expertise to Central Asia. Their previous experience with 5G will be important in expediting the technology's uptake in Central Asia.

In essence, as we stand on the precipice of these technological advancements, it's clear that the future of telecommunications is not just about faster speeds or more expansive coverage. It's about reimagining our digital lives and creating a world where the impossible becomes not just possible but everyday.

The innovative 5G home broadband service that is based on FWA, proved to be 5G's 'killer' application

In today's fast-paced world where constant connectivity isn't just a luxury but a necessity, the Middle East is positioning itself as a frontrunner in the 5G technological space. A considerable portion of this leap can be credited to Fixed Wireless Access (FWA), a technology that has redefined connectivity in the region.

At its core, FWA delivers internet connectivity using wireless mobile networks, bypassing the need for traditional hard-wired (cooper or fibre) connections. This is especially crucial in areas of the Middle East that are remote or geographically challenging to connect using conventional means. By bridging this connectivity gap, FWA hasn't just improved internet access but has also significantly boosted the revenue streams for telecom service providers.

The adoption of FWA in the region signifies more than just technological advancement. For telecommunications operators, FWA has revealed numerous untapped opportunities. With this key, they can now unlock areas previously considered inaccessible, broadening their reach and diversifying their service offerings. The result? An impressive spike in subscriber numbers and a notable increase in service usage. In financial terms, this translates to burgeoning revenues, reaffirming the importance of FWA in the Middle East's telecom landscape.

The success story of the Middle East in the realm of 5G and FWA is not confined to its borders. It stands tall as an exemplary blueprint for nations and regions worldwide. The meticulous planning, forward-thinking infrastructure developments, and astute regulatory measures adopted by the Middle East demonstrate a well-charted path to digital success. Moreover, the region's knack for fostering the right strategic partnerships underscores the importance of collaboration in achieving technological breakthroughs.

For countries and regions looking to embrace 5G, the Middle East's journey provides invaluable insights. It showcases the challenges, strategies, and successes, emphasizing the transformative power of technology. The region's story underscores how vision, innovation, and collaboration can shape the course of digital evolution.

Middle East's Leap into the Future of Connectivity

In the fast-evolving world of telecommunications, 5.5G technology emerges prominently, with the Middle East leading its swift adoption and deployment. As global telecommunications advance with the innovations of 5.5G, the Middle East stands as a guiding force, setting benchmarks for the world. The transition from 5G to 5.5G is transformative. It offers enhanced capabilities and expanded opportunities, reshaping connectivity, speed, and efficiency. The Middle East's proactive adoption and investment in 5.5G highlight its commitment to not only keeping pace with global trends but often leading them. By spearheading the 5.5G movement, the region establishes itself as a trendsetter in the global telecom domain.

Beyond telecom, 5.5G promises widespread implications. Imagine a healthcare system with efficient real-time monitoring, transportation networks refined by instant data processing, and virtual learning that rivals the immersion and responsiveness of traditional classrooms. The potential of 5.5G foretells a future abundant with innovation, enhancing the quality of life and solidifying the Middle East's role as a tech visionary.

The capabilities of 5.5G will pave the way for applications and services previously deemed the stuff of science fiction. The resultant surge in economic opportunities, coupled with enhancements in the quality of life, transforming industries, signifies a brighter future for millions across the region and, by extension, the globe.

The 5.5G home broadband services, which are based on Fixed Wireless Access (FWA), will evolve further with more spectrum resources and a broader range of devices. Consequently, these enhanced 5G home broadband services can offer speed-based packages with guarantees up to 500 Mbps and tariffs that cater to all segment needs.

5.5G will provide crucial capabilities for the further digital visual media service, which is undergoing a significant transformation, spearheaded by Naked Eye 3D and XR technologies, aiming at to provide more immersive experiences to the users. With Naked Eye 3D, viewers experience depth and dimension without external devices, offering an unprecedented level of engagement. Alongside, Extended Reality (XR) combines virtual and augmented realities, overlaying digital content onto the real world, thus redefining engagement across sectors.

5.5G will significantly enhance IoT capabilities. It introduces Redcap, a revolutionary communication protocol. This protocol is tailored for devices with limited requirements or those working in tough conditions. Additionally, passive-IoT innovations that are inspired by RFID technology, stand to transform sectors such as logistics, retail, and agriculture, allowing for cost-effective, large-scale deployment of IoT devices with extended battery life.

The Journey to 10G: Paving the Path to a Hyper-Connected Future

As the technology is evolving rapidly in the digital age, the lines between reality and virtual are continually blurring, the demand for faster, seamless, and more reliable networks is skyrocketing. Emerging technologies herald a new era

of connectivity, driving us towards the aspirational 10Giga society. This vision goes beyond mere speed; it's a holistic paradigm of unmatched connectivity, near-zero latency, and revolutionary user experiences.

The rise of groundbreaking technologies has undeniably stressed our current network infrastructures. The sheer data volume, combined with the need for instantaneous processing, calls for a radical rethink of how our networks operate. It's not just about amplifying bandwidth; it's about creating a robust, adaptive, and resilient digital ecosystem.

To pave the path towards a 10Giga society, multiple challenges need addressing. First and foremost is the imperative for substantial investment in infrastructure. This doesn't just mean more towers or cables, but smarter, more efficient architectures that can handle the demands of next-gen technologies. Concurrently, there is a need for vigorous research and development to stay ahead of the curve, ensuring that as technology advances, our networks are not playing catch-up but leading the charge.

Furthermore, a conducive regulatory environment is essential. Policymakers must recognize the transformative potential of a 10G society and craft policies that foster innovation while safeguarding user rights and ensuring equitable access. There's a prevailing sentiment: the future is forged by those who prepare today. In telecommunications, both the Middle East exemplify this forward-thinking approach. The Middle East, having already showcased leadership in adopting 5G and 5.5G, is charting the course for other regions. Simultaneously, Central Asia, with its readiness for 5G advancements, is set to play a pivotal role in the next chapter of digital evolution.

A synergistic collaboration between these regions, encompassing knowledge transfer, sharing of best practices, and joint innovation initiatives, can significantly accelerate the transition to a 10Giga society.

The 10Giga society is no longer a distant dream but a looming reality. As we stand at this crossroads, the combined efforts of regions like the Middle East, coupled with a global commitment to innovation and investment, will determine how swiftly and seamlessly we transition into this new era of hyper-connectivity.

Central Asia Region, the Centre of the 5G Second Wave Deployment and A New Dawn of Connectivity and Innovation

Four years have passed since the launch of the first commercial 5G network, and we are now at the onset of its second wave of deployment. Central Asia will be at the centre of this second wave. With its diverse landscapes and economic makeup, Central Asia stands on the cusp of a technological renaissance. With the rise of 5G technology, Central Asia is uniquely positioned to harness the boundless opportunities that come with this revolutionary communication advancement. As the region ventures forth, lessons from the Middle East's success can guide Central Asia, helping it avoid potential pitfalls and boost its tech capabilities.

Spanning vast steppes, deserts, and mountain ranges, Central Asia's varied topography presents distinctive connectivity challenges. Traditional wired communication infrastructure can be both logistically challenging and economically unviable in such terrains. This is where 5G's potential, particularly when coupled with Fixed Wireless Access (FWA), stands out. FWA's ability to deliver internet without relying on physical cables can bridge the daunting digital chasm in Central Asia. By doing so, communities residing in the most remote pockets of the region, often left in the shadows of the digital age, can now be ushered into the limelight. The deployment of 5G and FWA thus stands as a beacon of hope, ensuring that geographical challenges do not equate to technological isolation.

Yet, 5G's impact goes beyond just connectivity, It promises to usher in a wave of economic transformation and innovation. The sheer speed and reduced latency that 5G brings can redefine multiple sectors in Central Asia.

Consider healthcare, where real-time data transmission can revolutionize telemedicine, bringing expert medical advice to remote areas. In education, virtual classrooms can become seamlessly interactive, making quality education accessible to all. The agriculture sector can benefit from real-time monitoring and data analytics, optimizing yields and resource usage. Manufacturers can leverage 5G to drive automation and smart logistics, elevating production capabilities and efficiencies.

Fundamentally, 5G can interconnect the diverse sectors of Central Asia, fostering an environment ripe for growth, innovation, and inclusivity. As Central Asia stands at this technological crossroad, the choices it makes today will shape its tomorrow. Drawing from the Middle East's experiences and tapping into 5G's potential, Central Asia can envision a future of unmatched connectivity, prosperity, and digital inclusivity.

Conclusion

The rise of 5G and 5.5G technologies in the Middle East and Central Asia heralds a transformative era for telecommunications. The Middle East's pioneering efforts in 5G, particularly FWA, and its leadership in 5.5G, pave the way for global telecom advancements. Standing on the brink of 5G development, Central Asia harbours vast potential for innovation and growth. With ground-breaking technologies like Naked Eye 3D, XR, Redcap and passive-IoT on the horizon, we're moving towards an era with enhanced network needs, propelling us closer to the dream of a 10Giga society. The exchange of best practices and collaboration between these regions can act as a catalyst, shaping the future of telecommunications and realizing the boundless possibilities of a connected world.

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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.

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REGIONAL NEWS

Partnership to Launch UAE as the World's First AI Nation

Mark AB Capital, a leading investment firm, and Blaize, a cutting-edge artificial intelligence (AI) technology company, have joined forces to embark on an ambit journey following the vision of His Highness Sheikh Mohammed bin Zayed Al Nahyan the President of the United Arab Emirates (UAE), to establish the world's first AI nation. This transformative partnership is set to usher in a new era of technological innovation and sustainable development in the UAE. Under the visionary leadership of His Highness Sheikh Mohammed bin Zayed Al Nahyan, the has consistently demonstrated its commitment to becoming a global technology and innovation hub. This strategic collaboration between Mark AB Capital and Blaize represents a significant milestone in the UAE's quest to lead the world in AI-driven advancements. The partnership between Mark AB Capital and Blaize will soon utilizing Blaize's state-of-the-art edge AI technology that has forty-seven pioneering patents that underpin their cutting-edge solutions. Adding to Blaize's prowess is their strategic backing. They have garnered support from industry giants and visionary investors like Franklin Templeton, Toyota, Temasek, Daimler and Samsung that recognize the company's potential to shape the future of AI and edge computing. This initiative aims to enhance vivisectors including healthcare, transportation, education, finance, and more, through the power of artificial intelligence.

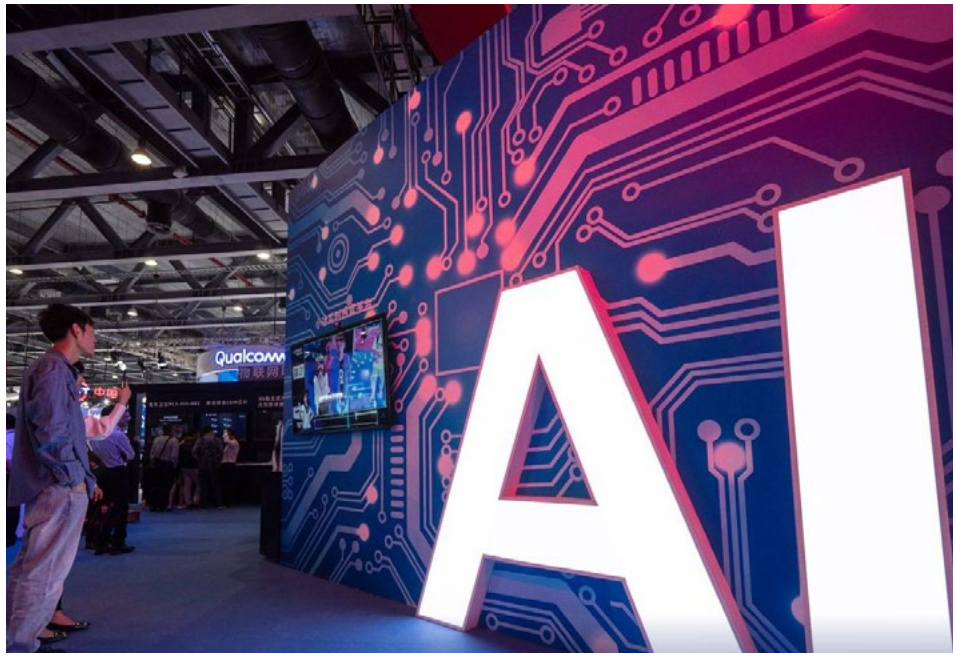
Key objectives of this groundbreaking partnership include:

AI Infrastructure Development: Mark AB Capital and Blaize will work together to build the critical AI infrastructure required for the development and deployment of AI solutions across the UAE. This infrastructure will serve as the foundation for the AI nation.

Research and Development: The partnership will invest in cutting-edge AI research and development initiatives to foster innovation in AI technologies, ensuring the remains at the forefront of AI advancements. AI Talent Development: Mark AB Capital and Blaize are committed to nurturing local talent in AI through educational programs and initiatives, building a skilled workforce capable of driving the AI nation's growth.

AI Governance and Ethics: The collaboration will also prioritize the development of robust AI governance and ethical frameworks to ensure the responsible and ethical use of AI technologies across the nation.

His Highness Sheikh Mohammed bin Zayed Al Nahyan's vision for the as the world's first AI nation represents an unwavering commitment to leveraging AI to improve the lives of citizens and residents while creating a sustainable and prosper future. This partnership with Mark AB Capital and Blaize aligns seamlessly with this vision, promising to accelerate the UAE's journey towards becoming a global AI leader. Commenting on this historic collaboration, Abdullah Mohamed Al Qubaisi, CEO of Mark AB Capital, said, "This partnership signifies a pivotal moment in the history of technology and investment. The has demonstrated its commitment to embracing AI, and our collaboration with Blaize will propel towards achieving this ambit goal. We look forward to making a beacon of AI excellence for the world to admire." Dinakar Munagala, CEO of Blaize, expressed his enthusiasm about the partnership, saying, "We are thrilled to partner with Mark AB Capital to embark on this remarkable journey. Our AI technology has the potential to revolutionize every aspect of life in the UAE, from healthcare to education and beyond. Together with Mark AB Capital, we are committed to making the first AI nation, setting a global precedent for AI innovation." This partnership between Blaize and Mark AB Capital marks a historic milestone in the journey toward creating the world's first AI nation. As the takes bold steps to lead in the era of artificial intelligence and sets the stage for a brighter, technologically advanced future for the nation.



Cloud's Contribution to Kuwait Economy Could Reach US$16.8 billion by 2033

Amazon Web Services, Inc. (AWS), an Amazon.com, Inc. company (NASDAQ: AMZN), commissioned a new report quantifying the relationship between cloud computing adoption, national productivity, and economic growth in the Middle East and North Africa (MENA) region. The report highlights the potential for Kuwait to unlock USD 16.8 billion in additional economic value over the next decade (2023-2033). The study, performed by Telecom Advisory Services LLC, and directed by Raul Katz, Director of Business Strategy Research at the Columbia Institute for Teleinformation (Columbia Business School), provides a cutting-edge econometrical method for calculating the aggregate productivity gains realized by economies that adopt cloud computing. It extends previous economic research focused on firm-level productivity by establishing cloud adoption as a driver of national productivity and economic growth. Unleashing the Economic Power of Cloud Computing in Kuwait In 2021, public cloud adoption made a significant impact on Kuwait's economy. According to the report, it contributed 0.59% to the country's GDP, generating an economic value of USD 798 million. The report finds that a 1% increase in cloud adoption by Kuwait organizations will result in a 0.05% (USD 63.86million) average GDP growth. Yasser Hassan, Managing Director, Commercial Sector (MENA and Turkey), at AWS, said: "The findings of our report highlight the tremendous opportunity for Kuwait to harness the potential cloud computing in line with the government's strategic initiatives. As cloud computing continues to gain momentum, it is imperative for Kuwait to invest in infrastructure and develop a skilled workforce to enhance the country's competitiveness on a global scale. With the support of AWS, Kuwait can accelerate its digital transformation and unlock new opportunities for economic growth and social development." The study demonstrates that the economic impact of cloud computing is guided by returns to scale - greater adoption of cloud computing will lead to proportionally greater productivity gains and economic impact. "The widespread adoption of cloud has already led to increased efficiency, cost savings, and job creation in various industries. As more businesses and organizations continue to migrate to the cloud, the economic benefits are expected to grow even further," added Yasser. The report identifies four key advantages of cloud computing. First, it enhances business efficiency and effectiveness, streamlining processes and improving outcomes. Second, it offers access to a wide range of services, enabling businesses to leverage advanced technologies. Third, it boosts productivity by facilitating collaboration, mobility, and agility within the workforce. Fourth, cloud computing promotes environmental sustainability by reducing carbon emissions per unit of data transmitted.

Egypt Pushes Digital Transformation Agenda

Digital transformation is a key component of Egypt's Vision 2030 strategy. Along with other key initiatives (ICT 2030 and Digital Egypt) it is expected to further accelerate the development of the country's digital economy and potentially provide a blueprint for other African countries. Egypt has made significant strides in digital transformation in recent years. Some of the notable achievements include: Launching a digital services portal, which provides more than 70 online services for citizens and businesses including issuance of national IDs, renewal car licenses, paying taxes, and applications for subsidies Developing a national broadband plan, which aims to increase internet penetration and provide high-speed internet access to all public institutions, schools, and health facilities Establishing a digital identity system enabling citizens to verify their identity online using biometric data and a unique national number, and access various e-government services Promoting e-commerce and supporting small and medium enterprises to adopt digital solutions and platforms Enhancing digital literacy and skills - Egypt has launched several initiatives to train students, teachers, workers and entrepreneurs in the use of digital technologies Supporting and enabling these achievements has been the government investing "heavily in upgrading and expanding telecommunications infrastructure, particularly fiber optic networks and mobile broadband services," explains Hussein Abaza, CEO and managing director, Commercial International Bank (CIB). The government has also initiated projects to connect public buildings to high speed internet access through the Digital Egypt

project. Growing demand for online services and platforms is another factor supporting Egypt's digital economy. With around 60% of its more than 100 million population under the age of 30, the country's large and youthful market offers immense potential for digital adoption and innovation as more people use smartphones, social media and e-commerce platforms to access information, entertainment, and purchases. "A dynamic start-up ecosystem has emerged in recent years," adds Abaza. "The country has been gearing itself to become a hub for entrepreneurship and innovation, attracting local and foreign investors, accelerators and incubators. This digital transformation offers immense potential for economic growth, as well as for delivering social and public services more efficiently and inclusively." CIB has played a significant role in Egypt's digital transformation, investing heavily in technology and innovation to provide customers with a seamless experience. The bank's early adoption of digital banking products and services was a crucial advantage, especially during the pandemic when its digitization program was accelerated. This led to the creation of the Bank of the Future program in late 2020, the six key pillars of which are service digitization; operations centralization; robotics; branch digital experience; branch classification; and digital sales. The program has impacted a number of customer service areas including internal and external fund transfer migration rates, cost synergies, and transaction volumes. Last year the program was extended to business banking customers where robotic process automation (RPA) has contributed to productivity enhancement, saving time, effort, and costs. The total number of transactions processed via RPA reached 1.25 million by the end of 2022. Online platforms have become a highly effective digital sales channel that now contribute 48% of the bank's total annual CDs/TDs booking in terms of volume and 44% in terms of value. This has enabled CIB to reduce branch traffic and enhance the customer experience. The launch of the Bank of the Future program has helped CIB to encourage greater use of digital services as an alternative to traditional banking methods. Two-thirds of its customer base now uses online banking, with 2.2 million internet banking transactions valued at approximately EGP65.6 billion executed last year, a 13% y-o-y increase. The online banking customer base reached 1.3 million users in 2022 (25% higher than in the previous year) while mobile banking transactions increased by 57% to 11.4 million. Zaki the Bot – CBI's AI-powered chat bot - conducted over 488,000 interactions on both the public website and Facebook Messenger.

Bahrain's Leadership Backs Digital Transformation

Bahrain is on the path to make use of emerging technologies such as Big Data, artificial intelligence (AI) and blockchain in government services in line with the 2030 Sustainable Development Goals (SDGs), said a top official. Information & eGovernment Authority (iGA) Chief Executive, Mohammed Ali Al Qaed told the 'World Economic Forum "GovTech Network" in Geneva, Switzerland the unwavering support for digital transformation by Bahrain's senior leadership has led to the development of many services, applications and government systems. Al Qaed said the Covid-19 pandemic was a key driver in accelerating the adoption of emerging technologies in government services to ensure the continuity of operations in both the public and private sectors. ICT-led growth Additionally, ICT has contributed to growth that surpasses expectations in vital areas such as e-commerce and distance learning. He highlighted the kingdom's notable experience in this area demonstrated by the National Suggestion & Complaint system - Tawasul, which allows the public to engage with government entities and submit their complaints, inquiries, and suggestions interactively through digital channels. Tawasul has fostered the community participation by the active response to the suggestions and complaints while promoting engagement across all segments. This is complemented by enhanced participation through social media, electronic and field surveys, blogs, and more. The forum's topics also addressed the importance of building a competent workforce capable of harnessing and adapting emerging technologies to improve government systems and services. Al Qaed highlighted the significance of human resource development in this field, particularly the Technical Development Program, which is carried out in collaboration with concerned government entities, and aims to cultivate a skilled and experienced national ICT workforce.

Cloud computing

During a session on 'Government Ecosystem', Al Qaed discussed potential and innovative solutions for government operations offered by cloud computing. He highlighted the importance of enhancing collaboration with leading global players, explaining that Bahrain has actively pursued this through its partnership with Amazon Web Services (AWS) to provide the infrastructure for hosting government services on cloud. This partnership has strengthened the ability of government entities to innovate, improve operational efficiency, and expand their storage capacities. He added that it

is important to establish a trusted digital identity via the adoption of technologies like AI, cloud computing, and others in providing government services. He affirmed the iGA's commitment to this endeavor through a partnership with a specialized digital identity company. He also discussed the significance of data and its role in shaping policies, strategies, and decision-making. He highlighted the iGA's efforts in launching an Open Data Policy to regulate data exchange with the public and enhance transparency in data presentation, all within well-structured governance frameworks.

Open Data Portal

He mentioned a recent collaboration with a leading open data company to establish a national Open Data Portal that covers areas such as healthcare, population, labor, education, land, economy, investment, culture, marriage and divorce, agriculture, trade, tourism, and more. Al Qaed said that the kingdom is prepared to showcase its initiatives and success stories to the world, along with successful products developed by Bahraini startups that align with the objectives of the event. GovTech aims to create a community of decision-makers, ICT leaders, international institutions, academia, and global research centers to discuss frameworks for international cooperation in digital transformation among government entities.

TDRA Announces the Conclusion of the 9th Edition of Its Virtual Camp

The Telecommunications and Digital Government Regulatory Authority (TDRA) announced the conclusion of the 9th edition of "TDRA Virtual Camp", which took place from 7 to 18 August 2023, with the participation of 2,700 students between 7 and 18 years old. This edition's activities aimed at providing a range of digital expertise and skills to encourage the participants to follow the tech path in their future endeavors. The closing ceremony, which was held virtually, was attended by H.E. Eng. Majed Sultan Al Mesmar, TDRA Director General. In his speech, H.E. Al Mesmar praised the wide participation in this year's edition, as the number of trainees reached 30,000 students since its launch in 2015, in addition to the quality of ideas presented by the participants. He said: "Today, as we celebrate this new group of creative minds and their inspiring ideas that reflect the true spirit of innovation, we are certain of the success of the vision of TDRA Virtual Camp, and the wisdom of our wise leadership directives that the future is for those who create it, not for those who talk about it, and the bright ideas presented by our students, are a reflection of this wise vision." H.E. Al Mesmar added: "With the conclusion of the 9th edition of this initiative, which always renews our happiness with the achievements and creative ideas that address the emerging technology that shape the features of our future life, I assure our students that there is no limit to creativity, that tomorrow holds limitless opportunities, and that we, at TDRA, are committed to making every effort to pave the way towards the future of knowledge, hoping that your ideas and fruitful endeavors will illuminate the path in the second fifty of the union's journey."

The camp participants implemented more than 3,300 projects, with an increase of more than 20% in projects, compared to last year's edition. The projects included 15 practical projects on artificial intelligence and machine learning, and 5 projects on generative artificial intelligence (ChatGPT), in addition to 12 awareness sessions on how to safely use technology, the advantages of sustainable technology, and 164 training videos on the main topics of this year's edition. Participating students also received 80 hours of technical support accompanying the camp's activities and events, and 10 hours of live broadcasting to guide students and respond to their inquiries. During the camp closing ceremony, students who won the final prizes were honored. For the age group 7-12 years, the student Obaid Abdullah Al Suwaidi won the gold medal, the student Lamar Muhammad Hamza won the silver medal, and the student Rawda Muhammad Al Mansouri won the bronze medal. As for the 13-18 age group, student Mansour Muhammad Al-Shibli won the gold medal, student Taif Ahmed Abdel Jalil won the silver medal, and student Aousha Khaled Al-Muhairthe won the bronze medal. The closing ceremony also included presentations by the winning students with detailed explanation of their projects. "TDRA Virtual Camp" is part of TDRA's community awareness initiatives aiming to spread awareness in the community. As part of this initiative, TDRA implements two camps per year, in summer and winter, which focus on modern technologies and acquiring the necessary skills that the younger generation needs in their academic and professional lives, thus encouraging the spirit of innovation and driving creative talents to take the initiative in this direction.

ARTICLE

Institutionalizing Digital Education Ecosystem Development in Developing Countries

How Uzbekistan has created new possibilities for schools, students, parents, and government authorities in this digital era

Gabriel Levi
Founder and CEO
Kundalik International

In the Republic of Uzbekistan, in order to digitalize the school education process, improve the computer competence of teachers, eliminate the digital inequality and improve the quality of education in general, in August, 2018 the Ministry of Public Education announced the selection of companies for cooperation in the form of a public and private partnership. From among 20 applications, the experts selected the Kundalik solution. With over 15 years of experience in digital transformation of education and government institutions, Kundalik International is the operator and private partner for digitalization of education in several CIS countries with more than 59 thousand schools connected and 30 million users registered.

As a result, a public and private partnership agreement was signed between the Ministry of Public Education of the Republic of Uzbekistan and Kundalik in order to develop a state digital educational ecosystem. The public and private partnership is an equal cooperation between the state and private business as a part of which the state saves budgetary funds and implements various projects that could not be implemented without any private investments.

> *The experience of countries that demonstrate the highest results in the field of school education shows that, at present, it is impossible to prepare children for modern life according to the high standards without the use of technology.*

The developed ecosystem provides digital tools for all members of the educational process. For teachers, this is an electronic journal and a homework diary for keeping records relating to the attendance/academic progress and other reports in digital format, distance learning tools, communication services with the students and parents. The parents can get quick access to the important information about the academic process and success of their children. The students, regardless of their location, can obtain

equal access to the educational content that contributes to the digital equality and increase in the academic level in the country. The government authorities have quick access to up-to-date information relating to the education system condition, required reporting and analytics for informed management.

The first platform implementation was commenced in the schools in Tashkent. Currently, Kundalik has been implemented in all regions of Uzbekistan. In total, the platform is used by more than 10 thousand schools in the country. In 2022/2023 academic year, 244 million lessons have been conducted in the schools in Uzbekistan with the help of Kundalik, 2 billion grades have been issued.

To work with the platform, the person can use any device with an Internet connection, such as a computer, laptop, tablet, or mobile phone. The Kundalik.com website is located in the TAS-IX zone, and Internet traffic (including with the help of mobile operators) is not consumed during the platform operation time.

A mobile application has also been developed for the teachers. This app allows to work without an Internet connection. Kundalik facilitates the work process and saves time of the teachers that can be usefully spent on the creative or additional development of students, or personal professional development. The reports are generated in an automatic mode, the grades are entered into the class-book during the lesson in a couple of minutes. It is also possible to write messages to the parents relating to the student's behavior. There is no need to take a roll call, carry around heavy paper class-books or wait for another teacher to return the class-book.

> *"One of the main objectives of the Ministry of Public Education is to develop comfortable work conditions for the teachers. While using up-to-date technologies, we want to significantly reduce the paperwork in schools and the related burden on the teachers. Moreover, we will create a tool for managing the educational process and generating objective reports relating to the students' attendance and academic performance"*
>
> **- H.E. Mr. Sarvar Babakhodzhaev, then Deputy Minister of Public Education of Uzbekistan**

> *"When I completed the online training conducted by the Kundalik supervisors, the platform operating principle became clear, and I decided to help all teachers, show them how to develop and import the lesson plans, issue the grades for school terms and examinations, indicate the class attendance and absenteeism for no reason. Based on the work experience as an administrator, I can say that Kundalik improves the quality of educational process, saves time that has been previously spent on paperwork, helps the teacher prepare video lessons, and also makes the student assessment system transparent"*
>
> **- Mr. Zhasurbek Makhmudov, a teacher of mathematics at the State Specialized Boarding School No. 7 of the Chustskiy district in the Namangan region**

> *With over 15 years of experience in digital transformation of education and government institutions, Kundalik International is the operator and private partner for digitalization of education in several CIS countries with more than 59 thousand schools connected & 30 million users registered*

In April 2021, Kundalik together with a partner launched a project to develop a multi-service online platform for supplementary mastering of disciplines as a part of the school curriculum. The project includes a design tool, a catalogue of academic applications that are grouped by the disciplines, classes or contents of textbooks included in the republican list. Moreover, the platform provides the distance learning services, motivation and gamification tools. The digital profile of a student demonstrates information relating to the diplomas, medals, or achievements. At present, the teacher can develop own

digital lesson, complete it with video or audio materials, test assignments and provide it as a homework through the Lessons Planning section in Kundalik. If necessary, the lesson can be bound to a textbook or an official syllabus for the discipline. When submitting a lesson as a homework, the teacher can set up the competition parameters and choose the presentation form. Thus, the senior classes can take a lesson in the messenger format, and the younger students can study in the form of an interactive game.

A mobile application Kundalik.Family has been developed for the parents and students. In addition to the standard options of a digital diary and a learning platform, the application provides very useful additional tools: a GPS tracker that helps determine the child's location, a rating in a class and detailed analysis of performance for various disciplines, an average grade, etc.

The application helps the students to use all the diary options, send their homework and files with completed creative tasks, view the curriculum, and schedule their day independently. It is also possible to send the homework in the application through the parent's profile that is especially useful for those families that have one smartphone to work with the platform. A motivational tracker in the Diary tab will inspire and encourage the students to complete their tasks and assignments faster.

> *"Despite the fact that the children are at home, we must start the 4th academic term at schools"*
> **- H.E. Mr. Sherzod Shermatov, then Minister of Public Education of Uzbekistan**

The project is completely funded by Kundalik's own resources. The state does not spend the budget for software development, operation and maintenance, introduction of the system into the schools. Transition to the digital document management in the schools allows the state to save on purchase of paper classbooks, since there is no need for them.

Moreover, the saved public funds can be used to equip the schools with computers and the Internet. Thus, on April 28, 2020, a decree of the President of Uzbekistan was signed, according to which all healthcare institutions, schools, preschool educational institutions should be connected to the high-speed Internet network in 2020-2021. In February 2020, to solve issues with the technical equipment of schools, a pilot project of the Ministry of Public Education of Uzbekistan was also launched to provide the tablets and laptops to the teachers by installments on preferential terms.

The project demonstrated its particular efficiency during the pandemic.

The Ministry of Public Education, together with the National Television and Radio Company of Uzbekistan, arranged the broadcasting of video lessons on the TV channels in accordance with the curriculum. The video lessons were also posted on the website of the Kundalik digital academic platform.

During this period that was so difficult for the country and the entire world, the Kundalik platform helped to provide the

> *Benefits of digitalization of the education system are clear: it helps to prepare a unified standard in all schools in the country, eliminate the digital inequality and find an individual approach to each child. The state can obtain the necessary data for analytics and management, provide the children with useful content for their development, and provide the parents with convenient services and involve them in the education process of their children. It also instills digital literacy in the citizens*

distance learning services. This system allowed the teachers to issue homework and learning materials, and the students could send their completed works for check and verification. As a result, the teachers issued grades in the digital class-book or gave comments on finalizing the answers.

It is noteworthy that due to the technology introduction in the field of education this industry has recovered faster than others after the pandemic in Uzbekistan. In January-May 2021, the growth rate of academic services in Uzbekistan turned out to be the highest and amounted to 145.2%. The rental and leasing services only were ahead of this indicator - 146.9%. Moreover, the level of educational services has recovered most quickly after the strict quarantine measures in 2020.

According to the research results, the children successfully studied, demonstrated more motivation and independence when doing their homework and classwork using the digital diary, even during the pandemic. Kundalik contributes to the improvement of school performance and attendance rates. The children are more actively involved in the educational process.

10, 000 parents of Uzbek schoolchildren took part in a survey where they told about their attitude toward academic digitalization and to the Kundalik digital homework diary. More than 67% interviewees responded that they had positive emotions about the abolition of paper homework diaries and transition to the digital ones, 22% persons were against such an innovation and 12% responders still found it difficult to give an answer.

In April 2021, Kundalik together with a partner launched a project to develop a multi-service online platform for supplementary mastering of disciplines as a part of the school curriculum. The project includes a design tool, a catalogue of academic applications that are grouped by the disciplines, classes or contents of textbooks included in the republican list. Moreover, the platform provides the distance learning services, motivation and gamification tools

According to 86% of parents, the most convenient thing in a digital homework diary is that at any time and in any place the parents can have a look at the exact schedule, grades, tasks and attendance of the child. All parents believe that such approach increases the interest of children in learning.

The majority of parents (61%) look through the grades in the digital homework diary together with their children. They believe that the child feels more attention from the parents and strives for the better results.

Benefits of digitalization of the education system are clear: it helps to prepare a unified standard in all schools in the country, eliminate the digital inequality and find an individual approach to each child. The state can obtain the necessary data for analytics and management, provide the children with useful content for their development, and provide the parents with convenient services and involve them in the education process of their children. It also instills digital literacy in the citizens.

No digital transformation of the economy is possible without the digitalization of education. Our kids today are the future of every country, they are the force that will be driving our countries forward. That's why school education should be digitized so that hundreds of millions of people could get all the benefits that come with technology.

SATELLITE NEWS

Paratus Signs Reseller Agreement with Starlink for Africa

Integrated network services company Paratus Group has entered an agreement as a distributor for high-speed services across the African continent on behalf of Starlink, the world's first and largest satellite constellation using a low Earth orbit. This agreement, says Paratus, will allow it to provide Starlink to its customers across Africa, as operating licenses are awarded to Starlink in those countries. Initially, and with immediate effect, Starlink will be available from Paratus in Mozambique, Kenya, Rwanda and Nigeria before being rolled out to more countries. Starlink is a satellite internet constellation operated by American aerospace company SpaceX. It provides high-speed broadband internet using a simple, scalable hardware platform that, it says, can be easily distributed across locations around the world. Starlink currently provides services to tens of thousands of business locations and serves customers in a multitude of capacities. Paratus will be able to provide its customers with both fixed, mobility and maritime services with immediate effect and with 24/7/365 enterprise support. Group Chief Commercial Officer of Paratus, Martin Cox says: "This agreement aligns perfectly with our vision of transforming Africa through exceptional digital infrastructure and customer service. It means we can offer industry sectors – such as land and offshore energy, mining, hospitality, education, healthcare, agriculture and more – the reliable and constant connectivity they need to flourish, no matter how remote they are."

OneWeb TONOMUS J.V. Selects Albabtain LeBlanc to Construct Satellite Network Portal in Tabuk, Saudi Arabia

First Tech Web Company Limited – a joint venture between OneWeb, the UK-based global communications agency and low Earth orbit (LEO) satellite service provider, and TONOMUS, the world-leading tech company powering the world's first ecosystem of cognitive technologies at NEOM – has selected Albabtain LeBlanc, a leading Saudi Arabian construction company, to construct a satellite station in Tabuk, Saudi Arabia. The station will form part of the joint venture's ground infrastructure, supporting the mission of bridging the digital divide across Saudi Arabia and the broader MENA region by providing consistent access to high-speed, low-latency internet connectivity to people and businesses in remote and underserved areas. The station is expected to be completed by the end of 2023, as Albabtain LeBlanc joins OneWeb's roster of partners across the Middle East, Europe, Africa and Alaska. "We are excited to partner with Albabtain LeBlanc to build our satellite station in Tabuk," said Laith Hamad, CEO of the OneWeb TONOMUS J.V. "This partnership is a key milestone in our efforts to bring high-speed internet access to people and businesses in Saudi Arabia and around the world." "We are proud to partner with the OneWeb TONOMUS J.V. on this important project," said Saleh Al Bedaiwi, General manager of Albabtain LeBlanc. "This collaboration is a testament to our commitment to supporting the development of the Kingdom's digital economy." The construction of the satellite station in

Tabuk is part of the joint venture's ongoing efforts to extend its ground network. The announcement follows OneWeb's appointment as Observer Member by the Digital Cooperation Organization (DCO). The role will allow the company to gain and provide insights into the initiatives the DCO is undertaking across member nations, including Saudi Arabia, Bahrain, Jordan, Morocco and Pakistan, as well as the broader digital world to accelerate the growth of the digital economy across DCO member populations. The network built by OneWeb will also be used to support a variety of applications, such as telemedicine, education and agriculture.

Yahsat Wins US$5.1 billion UAE Satellite Capacity, Services Deal

The UAE government has given the go-ahead to Al Yah Satellite Communications Company (Yahsat), the emirate's flagship satellite solutions provider, to provide satellite capacity and managed services for 17 years. Yahsat's government services arm, Yahsat Government Solutions (YGS), has been awarded the AED 18.7 billion ($5.1 billion), mandate that combines related operations, maintenance and technology management services of ground segment satellite systems and terminals currently provided under a separate contract. The mandate will replace two current agreements, the Capacity Services Agreement (CSA) and the Managed Services Mandate (MSM), which come to an end in November and December 2026, respectively. Under the new mandate, Yahsat will provide the government with secure and reliable satellite capacity and related managed services using the Al Yah 1 and Al Yah 2 satellites, currently in orbit, and supplement this by two new satellites, Al Yah 4 ("AY4") and Al Yah 5 ("AY5") which are expected to be launched in 2027 and 2028, respectively. The mandate significantly increases Yahsat's contracted future revenues to AED 25.7 billion ($7 billion), over 16 times its 2022 annual revenues, extending backlog well beyond 2040 and providing security and visibility over its future cash flows. Commenting on this key milestone, Musabbeh Al Kaabi, Chairman of Yahsat, said: "We are honored to secure the continued trust of the UAE Government to provide critical, secure communication services for a further 17 years beyond 2026. This award is a testament to our long-standing relationship with the Government and the quality of service that we provide as we continue to strive to consistently exceed customer expectations. "By complementing our existing fleet with Al Yah 4 and Al Yah 5 next generation satellites, we will be able to serve the government with new cutting-edge solutions that are not currently possible. The performance of the new satellites is expected to significantly surpass current industry capabilities including capacity, coverage and flexibility allowing us to offer a wide range of next generation applications to our end user. We are excited by this new journey and look forward to serving our customer with true operational excellence." Ali Al Hashemi, Group Chief Executive Officer at Yahsat, said: "This is a new chapter in Yahsat's momentous journey serving the satellite communications requirements for the UAE Government. The AED 18.7 billion mandate positions Yahsat for sustainable future growth, alongside other ambitious projects in the pipeline. "Our financial position has never been stronger and we now enjoy a contracted revenue backlog of AED 25.7 billion [USD 7.0 billion] or over 16 times annual revenues based on backlog figures at the end of the second quarter. Representing one of the largest backlog multiples and strongest balance sheets in the industry, we remain optimistic about providing a broader, more diverse and cutting-edge solutions portfolio to both the government and our customers."

Ofcom Measures to Encourage Satellite Connectivity for Maritime Services and Protect Other Services

Ofcom has today made changes to its Earth Station Networks license to confirm that NGSO satellites can deliver the latest space-based broadband services to ships and boats. At the same time, the new measures are designed to help us protect other services, such as radio astronomy, from harmful interference. Every satellite operator providing broadband services in the UK must hold an Earth Station Network license. These licenses authorize access to spectrum so that ground-based terminals can communicate with satellites. To ensure all providers of UK satellite services can access the spectrum in a similar way, we have made the following changes to the current Earth Station Network license:

- Explicit authorization for earth stations on boats, ships and offshore installations that connect to non-geostationary orbit (NGSO) satellites. This clarifies that these services are permitted in the territorial seas of the UK, Isle of Man and Channel Islands, and ensures that all NGSO services – whether on land, sea or air – all operate under the same license conditions.
- New license conditions to support the protection of geostationary orbit (GSO) satellite services, radio astronomy and fixed links from harmful interference caused by NGSO systems.
- A new definition of the geographic boundaries of the license.

The new/updated license will be issued to all new applicants granted an Earth Station Network license in future. The updated terms will be issued to all existing license holders in the form of a variation to their current licenses.

YahClick and NIGCOMSAT Partner to Expand Broadband Penetration

YahClick, the data solutions subsidiary of the UAE's flagship satellite solutions provider Al Yah Satellite Communications Company (YahSat), has partnered with Nigerian Communications Satellite (NIGCOMSAT) to expand broadband penetration in sub-Saharan Africa and boost access to critical electronic services across the region. The project is expected to begin in Q4 2023 and will see YahClick work closely with NIGCOMSAT to provide faster and more reliable broadband internet connectivity. The improvements, say the partners, will result in speed increases of up to 25 Mbps for standard profiles and up to 100 Mbps for dedicated corporate users. This, the partners say, will empower the delivery of essential education, health, and a wide range of other public and corporate services. YahClick says its expertise and cutting-edge technology will enable the rollout of e-government applications and help accelerate Nigeria's digitization plans, providing unserved and underserved communities with uninterrupted internet. A steering committee compromising executives from both companies has been formed to ensure the implementation of the project is aligned to the national requirement and essential service institutions in Nigeria. Sulaiman Al Ali, Yahsat's Chief Commercial Officer, explains: "Our partnership will play an important role in helping the Nigerian government as well as private organizations roll out critical electronic services to underserved and unserved communities across the country. For Nigeria's digitization drive to be successful, it is imperative that in-country infrastructure is reliable enough to deliver uninterrupted services. YahClick has extensive experience in providing advanced and affordable technologies that are easily accessible in remote regions."

Telesat Taps SpaceX for LEO Launch

Canada-based Telesat inked an agreement with SpaceX to launch low Earth orbit (LEO) satellites in 2026, as it moves to provide commercial global broadband services in late 2027. Telesat booked 14 launches on SpaceX's Falcon 9 rocket, which will each carry up to 18 Lightspeed satellites. Dan Goldberg, Telesat president and CEO, stated the latest constellation is the most ambitious in company's 54-year history. He explained the company previously used SpaceX for the launch of geostationary satellites. The company stated the optically connected network would provide multi-Gb/s data rates and low-latency broadband connectivity. It signed an agreement with MDA for the construction of 198 birds last month. Alongside the SpaceX deal, Telesat announced it is fully funded through a combination of its own equity contribution, vendor financing and financial commitments from Canadian authorities.

Low-Cost, Low-Weight Satellite Solution is Coming to Mexico

Satcoms company Astranis is partnering with Mexican ISP Apco Networks on what it describes as a two-satellite program to bring affordable broadband internet to five million people. Astranis was founded in 2015 with the aim of connecting the world by reducing the cost of internet services in rural and remote areas with small, powerful satellites for geostationary orbit. These are much smaller than traditional GEO machines, which can weigh multiple tons. Astranis says the satellites, launching in 2024, will become the first Ka-band satellites ever dedicated to Mexico. Apco Networks has 19 years of experience providing end-to-end satellite connectivity solutions in Mexico under the brand name Aitelecom. Astranis points out that Apco has the local expertise that is necessary to successfully roll out connectivity services in a market as diverse as Mexico. It also has an innovative, long-term partnership with a ground solutions provider that will enable Apco to serve a unique role in the Mexican connectivity ecosystem. Astranis says its satellites will allow Apco to provide a managed service for many different kinds of connectivity — Wi-Fi sites, direct-to-enterprise, and backhaul for rural cell sites. Apco is said to be eager to partner with other internet service providers in Mexico, a strategy that helps supply local solutions that fit local demand. This agreement comes only a few months after Astranis announced plans to launch and operate a new small broadband GEO satellite in 2024 that will provide connectivity over the Philippines. The website Data Centre Dynamics adds that US-based mobile satellite connectivity specialist Anuvu and Peruvian cellular backhaul provider Andesat have also ordered satellites from Astranis.

Province Looks at Satellites to Expand Internet Access

Residents in rural and remote parts of Ontario may soon have access to high-speed Internet delivered by satellite. The provincial government is currently looking for potential service providers. Depending on the response, project requests could be asked this fall. The province says satellite service could lead to some 43 thousand homes and businesses in unserved and underserviced areas having new or improved Internet services. "Our government has made incredible progress on filling high-speed internet service gaps across the province, but we know more needs to be done," says Kinga Surma, Minister of Infrastructure, in a statement. "Where ground-based infrastructure is currently not an option, a qualified satellite service provider will ensure that the hardest-to-reach areas of our province will have access to reliable high-speed internet."

"Infrastructure Ontario is proud to embark on a new, first-of-its-kind procurement for satellite service in Canada," adds Michael Lindsay, President and Chief Executive Officer of Infrastructure Ontario. "Finding economically and technically viable market solutions for this ambitious government goal has made Ontario a leader in the field of making high-speed internet accessible to everyone." No date for implementation is identified, but the province says using a satellite Internet service provider would help in the plan to bring connectivity to every community by the end of 2025.

KDDI Partners with SpaceX to Bring Satellite-to-Cellular Service to Japan

The Japanese telecom provider KDDI announced that it has signed an agreement with SpaceX to introduce satellite-to-cellular service in Japan. Leveraging SpaceX's Starlink low earth orbit (LEO) satellites and KDDI's extensive national wireless spectrum, this partnership aims to enhance cellular connectivity in areas, including remote islands and mountains that have been traditionally hard to reach using conventional 4G and 5G networks. As per the statement, the joint initiative builds on the common vision of "connecting the unconnected," to empower users in remote regions with seamless cellular connectivity. KDDI and SpaceX plan to roll out SMS text services as early as 2024, with plans to extend to voice and data services subsequently. "Almost all existing smartphones on the KDDI network will be compatible with this new service as it employs the device's existing radio services," said the statement. Both the partners, KDDI and SpaceX also extend an invitation to mobile network operators globally to join the ecosystem of Mobile

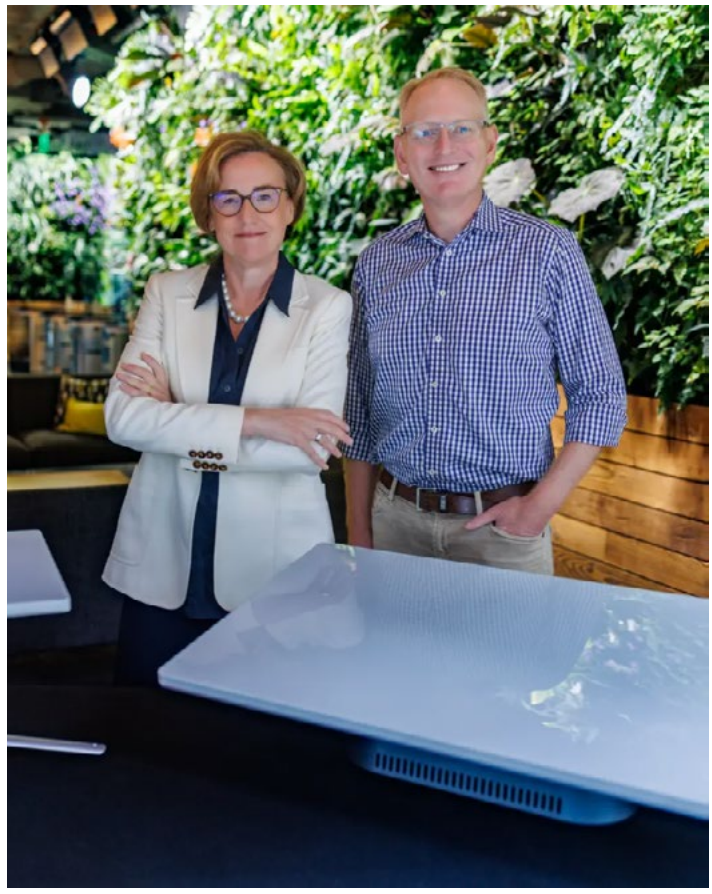
Network Operators (MNO), bringing the next-generation satellite-enabled connectivity to their customers. KDDI's au network is said to provide 99.9 percent "population coverage" to the people of Japan. Further to its efforts, KDDI says it will provide "connecting the unconnected" experience, by enabling smartphones to connect to satellites. SpaceX's Starlink delivers high-speed, low-latency internet to users all over the world. As the world's first and largest satellite constellation using a low Earth orbit, Starlink says it will deliver broadband internet capable of supporting streaming, online gaming, video calls and more.

Potraz Warns Illegal Satellite Service Providers

The Postal and Telecommunications Regulatory Authority of Zimbabwe (Potraz) has warned that those operating unlicensed postal and telecommunications services will be punished by the country's laws. The warning follows revelations by United States-based political activist Freeman Chari that he has set up communications devices in 72 mountains across the country. In a statement, Potraz Director General, Gift Machengete, said only local licensed operators are permitted by the authority to distribute satellite- based internet services if their virtual network operator (VNO) agreements have been approved by the regulating authority. "Potraz regulates the provision of postal and telecommunications services in Zimbabwe. The mandate of Potraz includes licensing of postal and telecommunications service providers and enforcement of compliance with license conditions and applicable laws for the sector. The licenses are issued in terms of the Postal and Telecommunications Act [Chapter 12:05] (The Act), as read with the Postal and Telecommunications (Licensing. Registration and Certification) Regulations, 2021," "The public is further reminded that local licensed operators are only allowed to distribute satellite-based internet services if their VNO agreements have been approved by the Authority," he said. The Citizens Coalition for Change is accusing the Zimbabwe Electoral Commission of election fraud through releasing "fake results" in favor of Zanu PF. A Team Pachedu sympathizer and technology entrepreneur Chari revealed that they have installed devices across the country to collate results from the recent election. Machengete added that operating a telecommunication device without a valid license certificate or authorization from Potraz was "a statutory offence punishable at law".

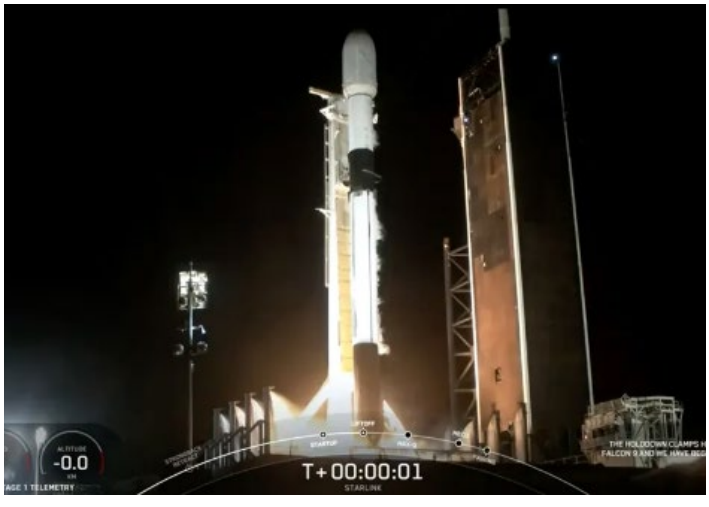
Vodafone Partners with Amazon to Expand Coverage in Europe, Africa

Vodafone partnered with Amazon's satellite connectivity company Project Kuiper, a move to use the latter's low earth orbit satellites (LEO) to extend 4G/5G coverage for Vodafone and Vodacom subscribers in Europe and Africa. In a statement, Vodafone Group explained the LEO satellites can deliver 4G/5G connectivity to remote locations with little traditional infrastructure such as fiber or microwave solutions. Project Kuiper will connect geographically dispersed antennas back into Vodafone's core telecom networks. This, the operator explained, enables Vodafone and Vodacom to offer 4G and 5G services in more locations with less time and expense compared to building fiber-based or fixed wireless links back to its core. As part of the partnership, the companies will also roll out Project Kuiper's high-speed broadband services to "tens of millions" of people from underserved communities. Also, being explored are additional enterprise–specific offerings to provide businesses with comprehensive global connectivity solutions, such as backup service for unexpected events and extending connectivity to remote infrastructure. Vodafone Group CEO Margherita Della Valle said: "Vodafone's work with Project Kuiper will provide mobile connectivity to many of the estimated 40% of the global population without internet access, supporting remote communities, their schools and businesses, the emergency services, and disaster relief. These connections will be complemented further through our own work on direct-to-smartphone satellite services." Shameel Joosub, Vodacom Group CEO said: "Collaborating with Project Kuiper gives us an exciting new path to scale our efforts, using Amazon's satellite constellation to quickly reach more customers across the African continent."



SpaceX Launches Starlink Satellites on Record-Breaking 62nd Mission of the Year

SpaceX just set a new launch record. The company sent 21 of its Starlink internet satellites to orbit atop a Falcon 9 rocket from NASA's Kennedy Space Center in Florida at 10:47 p.m. EDT (0247 GMT on Sept. 4). It was SpaceX's 62nd orbital mission of 2023, setting a new record for most flights in a year, according to company founder and CEO Elon Musk. The old mark was set in 2022. The Falcon 9's first stage came back to Earth as plane. It touched down about 8.5 minutes after liftoff on the drone ship Just Read the Instructions, which was stationed in the Atlantic Ocean. It was the 10th launch and landing for this particular booster, according to a SpaceX mission description. The Falcon 9's upper stage, meanwhile, kept on flying. It's scheduled to deploy the 21 Starlink satellites into low Earth orbit (LEO) about 65 minutes after liftoff. The launch was part of a big day for SpaceX. The company is also bringing home the four astronauts of its Crew-6 mission, who had been at the International Space Station (ISS) since March. Crew-6's Crew Dragon capsule, named Endeavour, departed the ISS a little after 7 a.m. EDT (1100 GMT) today. It will splash down in the ocean off the Florida coast at around 12:17 a.m. EDT (0417 GMT).



ARTICLE

Generative AI Revolution: Unleashing Creativity and Efficiency Across Industries

Generative AI applications have grown explosively over the years. According to Gartner, generative AI will account for 10% of all data generated and 30% of outbound marketing messages by 2025. Generative AI has been widely used to create text, code, images, videos, and others across industries such as gaming, finance, media & entertainment, biology & chemistry, and others.

In the domain of Text Generation, our AI solutions enable industries such as government, finance and others to increase efficiency through automated customer service, Q&A, and chatbots. In the government sector, our Pangu Government Model helps to build digital government 2.0 with E2E intelligence in government Q&A bot and government copywriting. In the finance industry, our Pangu Finance Model is pre-trained on massive amounts of common-sense knowledge in finance to provide multidimensional content generation and checks such as financial policy document-based Q&A.

> *AI is powering innovations across various industries, shifting from traditional AI models focusing on classification and prediction to AI-Generated Content (AIGC) or Generative AI.*

In the context of Code Generation, Huawei Cloud combines CodeArts with Pangu to build CodeArts Snap - an intelligent programming assistant for developers to assist in code generation across industries like the financial industry and other sectors. Trained with 76 billion lines of quality code and 13 million technical documents, CodeArts Snap makes generation, Q&A, and collaboration smarter. It generates code through one dialog, automatically comments out and generates test cases in one click, and deploys services/apps with one instruction.

In the area of Image Generation, Huawei Cloud Pangu Models assisted Meitu X-Design in their clothing design through customized exclusive models to produce natural and appropriate clothing designs with the option to switch different scenes. In addition, Huawei Cloud integrated its Pangu model into the MetaStudio digital content production line to create the Pangu Digital Human model that has been pre-trained using 200,000 hours of audio and

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President
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HUAWEI

video data. With this, it takes only 5 seconds to generate a 3D digital human model from a photo, with support for personalized facial adjustments. The "digital human video production" service allows users to create live broadcasts using text, voice, or video input.

In the Scientific Computing field, the Huawei Cloud Pangu Drug Molecule Model can generate millions of new molecular structures and analyze their drug properties to screen potential molecular structures as drugs. This can reduce the costs of trial and error, accelerating the discovery of lead compounds from several years to just one month.

The unprecedented generative AI opportunity

Artificial Intelligence (AI) has become an integral part of today's world, transforming how we live, work, and interact. AI is powering innovations across various industries, shifting from traditional AI models focusing on classification and prediction to AI-Generated Content (AIGC) or Generative AI. According to Gartner, AIGC will account for 10% of all data generated by 2025. Additionally, 30% of outbound marketing messages will be generated by AI by 2025, a significant increase from less than 2% in 2022. We can also expect a major blockbuster with 90% of the film generated by AI in 2025, from 0% of such in 2022. I firmly believe that using AI in various industries will be the next big tipping point, ushering in a new era of ubiquitous connectivity and intelligence and driving innovation and productivity across sectors.

Huawei Cloud Pangu streamlines AI adoption for industry

Implementing AI into business operations requires overcoming a few challenges, such as difficult data acquisition, difficult industry knowledge distillation, and difficult knowledge computing that enterprises need to address. With conventional AI model development, a considerable amount of manpower, customization, and sample training are required for every specific scenario and often take a long time to develop.

Huawei Cloud Pangu Models are trained with hundreds of billions of parameters, outperforming peer models in terms of understanding and generation. The decoupled, hierarchical architecture allows the Pangu models to be quickly adapted to a wide range of downstream tasks. Customers can load independent datasets to train their own models. They can also choose to upgrade foundation models or just upgrade capability sets.

To meet enterprises' data security requirements for AI models, Huawei Cloud provides multiple deployment modes, including public cloud, dedicated zone (public cloud), and hybrid cloud. In this way, enterprises can enjoy the continuous supply of compute resources from the public cloud while keeping data within their own organizations to build their own AI models.

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Our models are industry-tailored with specific knowledge and experiences, such as our own business experience over the past 30 years, know-how in more than ten industries, and those from our customers and partners. In addition to an ocean of general knowledge, Pangu models have been pre-trained with open datasets from more than ten industries, including finance, government, meteorology, healthcare, Internet, education, automotive, and retail. The data volume of each industry exceeds 50 billion tokens.

Navigating the policy and ethical landscape of Generative AI

Generative AI is a rapidly developing technology with the potential to impact society significantly, both positively and negatively. As a result, governments and international organizations are developing policies to ensure that Gen AI is used safely and ethically.

For example, the European Union's Artificial Intelligence Act, which is currently being drafted, is expected to be one of the most comprehensive AI regulations in the world. The act will set out requirements for companies that develop, deploy, and use AI systems, including transparency, accountability, and risk assessment.

The regulatory landscape for AI is continually evolving and the level of awareness and compliance varies from one company to another. Therefore, organizations need to stay updated on regional and global policies surrounding AI, as compliance can be complex and rapidly changing.

In addition to being aware of regional and global policies, companies must also be mindful of the ethical implications of using Gen AI. This includes issues such as bias, transparency, and accountability. Companies need to ensure that their AI systems are fair, unbiased, and transparent about how they work. They also need to be accountable for the decisions made by their AI systems.

By being aware of the regional and global policies and ethical implications surrounding the use of Gen AI, companies can help to ensure that this technology is used safely and responsibly.

Generative AI will completely transform creative industries

A Generative AI model is a machine learning-based technology that learns from large amounts of data and generates new content. Compared with traditional AI models, this technology is more flexible and creative and can produce more diverse results. It can be used in natural language processing, image generation, music creation and other fields, bringing new experiences and possibilities to people.

In the field of natural language processing, Generative AI models can be used for text

generation, dialogue systems and other tasks. By learning large amounts of text data, generative AI models can generate new text similar to human language and even produce conversations. This provides powerful support for applications such as automated text generation and intelligent customer service. The Pangu NLP has made a significant breakthrough as it was distilled with a large amount of general knowledge in the pre-training phase, allowing the model to embed industry knowledge bases and databases easily to acquire industry know-how efficiently. Huawei Cloud worked with partners to develop the Pangu NLP model for the Arabic language that supports hundreds of billions of parameters with semantic understanding accuracy reaching 95%, becoming No.1 in Arabic language understanding.

In the financial field, companies can use generative AI to create financial models

> *A Generative AI model is a machine learning-based technology that learns from large amounts of data and generates new content. Compared with traditional AI models, this technology is more flexible and creative and can produce more diverse results.*

and forecasts to aid in decision-making and risk management. Huawei Cloud provides resilient infrastructure, application modernization technologies that make financial applications agile, and innovative AI and virtual human technologies that build intelligence into businesses. For conventional financial institutions, Huawei Cloud focuses on AICC, digital interaction, and digital banking for them to go digital.

In the field of image generation, generative AI models can be used for image synthesis, image inpainting and other tasks. By learning a large amount of image data, the generative AI model can generate new images similar to real images and even repair damaged photos. This brings new possibilities for artistic creation, image processing and other fields.

In the field of music creation, Generative AI model can be used for music generation, music recommendation and other tasks. By learning a large amount of music data, the generative AI model can generate new music similar to human music, and even personalized recommendations can be made according to users' preferences. This has brought new opportunities for music creation and music promotion.

The essential Generative AI checklist

A centralized data strategy is essential for adopting Gen AI because Gen AI models need to be trained on large amounts of data. Collecting and preparing for training can be difficult and time-consuming if the data is scattered across different departments and systems. A centralized data strategy makes it easier to manage and access the data, which can help to accelerate the Gen AI adoption process.

Before adopting Gen AI or any AI technology, organizations should consider several key factors to ensure a successful and responsible adoption of AI. These factors include:

- **Business Objectives:** Clearly Define the business goals and objectives that Gen AI is intended to address, say in improving customer experiences.
- **Data Strategy:** Gen AI models are trained on data; to ensure data quality and availability, it is essential to have a centralized data strategy in place to ensure that the data is high-quality, well-organized, and accessible to the Gen AI team.
- **Ethical considerations:** Gen AI raises several ethical concerns, such as bias, transparency, and accountability. Companies must have a plan to address these ethical concerns before adopting Gen AI. We must develop and adhere to a responsible AI framework addressing ethical concerns.
- **Regulatory Compliance:** It is critical to understand the regional and global regulations that pertain to the use of the AI, especially in sensitive areas such as healthcare or finance. Ensure that the AI system complies with data protection and ethical guidelines.
- **Skills & Talent:** Gen AI is a complex technology requiring skilled personnel to develop, deploy, and manage. Companies need to have the necessary talent in place before adopting Gen AI.
- **Compute Resources:** Gen AI models can be computationally expensive to train and deploy. Companies must ensure they have the necessary compute resources before adopting Gen AI.

Generative AI eases talent management challenges

Companies can develop a structured way to experiment with Gen AI to predict the future:

Use Gen AI to forecast demand for skills and talent. Gen AI can be used to analyze data from various sources, such as job postings, social media, and industry trends, to forecast future demand for skills and talent. You can train Gen AI models using historical data to learn patterns, correlations and trends in your workforce. This information can be used to predict future demand for skills and strategic workforce plans that ensure that the company has the right people in the right places with the right skills at the right time.

Use Gen AI to predict employee turnover. Gen AI can be used to predict employee turnover based on various factors, such as employee demographics, performance reviews, and job satisfaction surveys. This information can be used to develop strategies to reduce turnover and retain top talent.

Use Gen AI to simulate different workforce planning scenarios. Gen AI can be used to simulate different workforce planning scenarios, such as the impact of new technologies, changing market conditions, and mergers and acquisitions. This information can be used to develop contingency plans and ensure the company is prepared for any eventuality.

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WHOLESALE NEWS

ANCOM to Deregulate Call Termination Markets

Romanian telecoms watchdog the National Authority for Management and Regulation in Communications (ANCOM) has published for public consultation a draft decision proposing the withdrawal of obligations imposed on operators identified as having significant market power (SMP) in the fixed and mobile voice call termination services markets. The decision is supported by the latest EU delegated regulation on harmonized termination rates (2021/654), which regulates at EU level the maximum tariffs that can be charged for termination services. With the most significant obstacles to competition and market entry removed, ANCOM proposes to withdraw the individual obligations imposed on SMP operators in this area. The regulator has established a transitional period of one year for the changes to take effect, during which the previous obligations will be maintained under the same conditions. Interested parties are invited to submit their comments before 23 October.

National Telecom, AIS Strike Roaming Deal

Thai state-owned operator National Telecom (NT) rented RAN gear from AIS to enable its commercial 5G strategy, with the latter tapping into the former's 700MHz spectrum. The move was approved by the nation's telecoms regulator and will involve the lease of 13,500 base stations that will be constructed by AIS over the next two years and a domestic roaming deal on infrastructure until March 2036. AIS will provide roaming services for free to NT until the network is built, but an unspecified roaming fee will be in place when finishes. Separately, AIS will pay THB14.9 billion (US$419.6 million) for half of NT's 700MHz spectrum to the National Broadcasting and Telecommunications Commission. A provision of this deal will be that 20% of this spectrum will be reserved for MVNOs. State-owned operator CAT Telecom previously bought two 5MHz blocks of 700MHz at auction in 2020 for THB 34.3 billion. NT is also planning to launch 5G services for enterprises using 400MHz of 26GHz spectrum TOT which merged with CAT Telecom. AIS recently trialed mmWave 5G standalone technology in Bangkok with Chinese equipment vendor ZTE, in a move to enhance new use cases such as VR and online gaming.

Moldova Closer to EU Roaming Agreement

The European Commission (EC) adopted a proposal which will lead to the inclusion of Moldova into the bloc's roam like at home rules, progressing a plan agreed earlier this year. In a statement, EC noted it and the Moldova Association Committee will amend their existing agreement by including an updated legislation on telecoms and postal services implemented by the European Union (EU), once it receives the green light from the European council. Moldova will start adopting new roaming rules once relevant legislations are updated, enabling travelers to roam without extra costs. The move follows an agreement on data roaming agreed in June, when operators including Orange, Deutsche Telekom and Telefonica voluntarily pledged to lower roaming rates for travelers starting January 2024. Valdis Dombrovskis, EVP and commissioner for Trade in the EU said the bloc is now "one step closer towards bringing Moldova into the EU free roaming area".

Commission Says Mobile Roaming Regulation Still Important to Competition

New Zealand's Commerce Commission has decided to retain its ability to regulate national mobile roaming, saying it remains an important regulatory backstop for promoting competition in mobile telecommunications markets for the benefit of consumers. Telecommunications Commissioner Tristan Gilbertson explained in a press release that the regulator had decided to leave existing obligations in place following consultation on whether there were reasonable grounds for considering their removal. 'Coverage is a critical feature of being able to offer competitive mobile services at the retail level and national roaming is a valuable regulatory backstop against which commercial negotiations for wholesale access can take place,' he said. The Commerce Commission highlighted that national roaming had been critical to the development of the New Zealand mobile market and to enabling 2degrees, in particular, to provide services across the country as it progressively built out its own national mobile network. 'At this stage, we don't consider the telecommunications market has developed to such an extent that roaming regulation is no longer necessary to safeguard new entry and promote competitive outcomes in the market,' Mr. Gilbertson added.

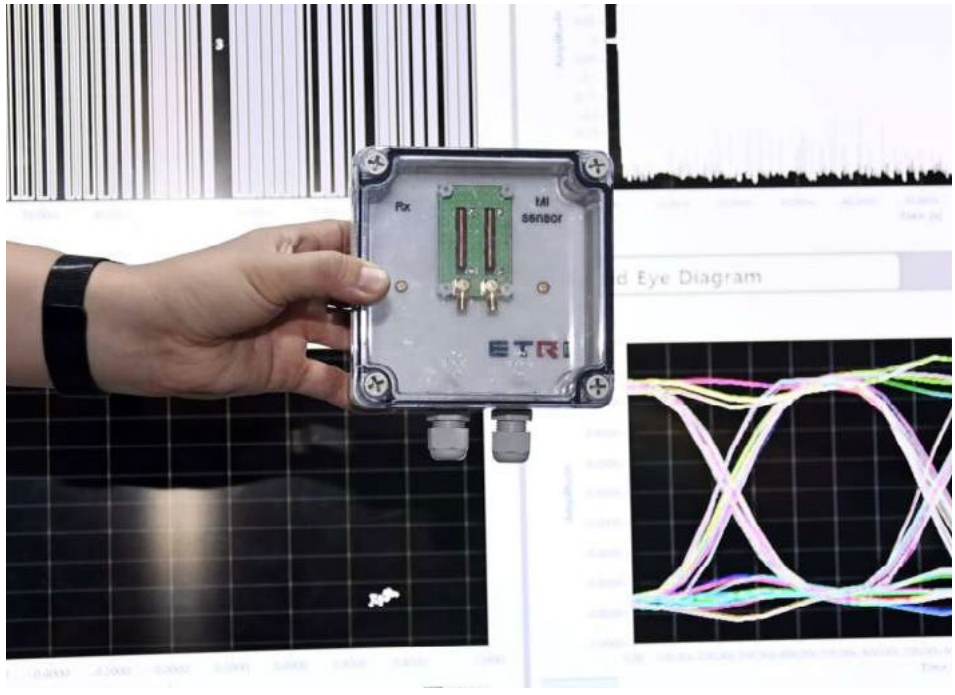
Citymesh/Digi Sign National Roaming Deal with Proximus, Acquire 400 Sites

Digi Belgium, the joint venture between Belgian B2B connectivity provider Citymesh and Romania's RCS&RDS, has struck a national roaming agreement with Proximus. The company claimed the deal marks a significant milestone in Digi Belgium's plans to enter the mobile market, as it guarantees a five-year access right to Proximus' mobile network. In parallel, Proximus has agreed to sell the new entrant around 400 mobile antenna sites, significantly accelerating Digi Belgium's rollout. The sites will be transferred to InSky, the company responsible for deploying the infrastructure of Digi and Citymesh. In a press release announcing the deal, Citymesh group chief strategy officer Ward Van Ooteghem said: 'We're on schedule! In 2022, together with RCS&RDS, we acquired the package for the new Belgian telecom player. Creating a complete nationwide Digi network will take a few years, but thanks to this agreement, we can combine the strong Proximus coverage with the rollout of our own Digi network. This way, we can enter the market in 2024 with a comprehensive mobile offering for both consumers and business clients.' Citymesh Group CEO Mitch De Geest added: 'These were complex negotiations. Many thanks to all parties involved for their positive mindset and willingness to make

this project succeed. This agreement is a crucial step in our masterplan. The goal remains to break the status quo in Belgium and demonstrate that quality and fair offerings are possible here too. We will be announcing the concrete plans very soon.' Commenting on the agreement, Proximus Group CEO Guillaume Boutin said: 'I am convinced we have reached an agreement that benefits all parties involved. The fact that Digi Communications Belgium and Citymesh Connect choose to collaborate with Proximus, highlights our mobile excellence and proves the strength of our open network strategy, allowing us to capture value out of the capacity, coverage and performance of our gigabit networks.'

TECHNOLOGY NEWS

Researchers Confirm Possibility of Wireless Communication 40m Underground by National Research Council of Science & Technology



South Korean researchers have made a discovery that enables wireless communication below the Earth's surface, a significant departure from their traditional focus on terrestrial communication systems. This development opens new avenues for confirming the survival of individuals trapped due to accidents such as mine collapses during rescue operations. The Electronics and Telecommunications Research Institute (ETRI) announced that they have successfully developed the world's first "Subterranean Magnetic Field Communication Core Technology." Utilizing a transmitting antenna with a diameter of 1 meter and a receiving antenna of several centimeters, the institute managed to send and receive voice signal-level capacity up to 40 meters below the Earth's surface in a mine. Conventional wisdom held that wireless communication in the complex underground environments of mines was virtually impossible due to signal attenuation. However, ETRI overcame these obstacles by developing a new communication system that leverages the unique boundary conditions of magnetic fields within the medium. The result is a successful transmission of voice data-level capacity in a mine where stable communication was previously unfeasible. The research team miniaturized the size of their transmitting antenna to 1 meter, contrasting with the tens-of-meters scale antennas used in previous international research. The system also features small receiving sensors based on magnetic induction, with dimensions in the order of centimeters. According to the researchers, the newly developed transmitting and receiving antennas function akin to an Access Point (AP), essentially serving as a base station linking the surface and the underground. Therefore, it is expected that once transmitting devices on the surface and receiving devices underground are installed, individuals awaiting rescue could communicate through personal devices like mobile phones, connected to these antennas. The successful communication test was conducted over a distance of 40 meters inside a mine composed of limestone bedrock. The team explained that they used a very narrow low-frequency band of 20kHz, rather than the MHz or GHz range commonly used in general wireless communication. This frequency band was chosen to minimize material loss in the subterranean or underwater environment, and to suit the size of the antennas. The data transmission rate for voice signals was maintained at around 4kbps, sufficient for basic two-way communication. In the labyrinthine darkness of underground mines, which bear a resemblance to the complexity of an ant colony, researchers have demonstrated the ability to transmit data directly over a distance of 40 meters between various levels. This successful application of magnetic field communication promises to bring substantial changes to the underground mining industry. Notably, this technology is expected to offer a reliable mode of communication during emergencies such as mine collapses, underground fires, and other disaster scenarios that typically disrupt conventional communication systems. ETRI emphasized that magnetic field communication systems would maintain connections between miners and rescue teams during accidents, thereby facilitating better-coordinated rescue efforts. The technology is also seen as a means to reduce response time in emergencies and to enhance safety measures. Additionally, Last year, they successfully executed underwater communications up to a depth of 40 meters in freshwater regions such as rivers and streams.

Ericsson Claims Open RAN Milestone

Ericsson committed to introducing compatibility for open fronthaul across its cloud RAN and radio portfolio starting in 2024, a move it claimed underlined its commitment to leading the industrialization of open RAN. It stated it worked together with the industry through the O-RAN Alliance to reach a critical milestone towards defining the next-generation open fronthaul interface, required to bring performance at scale to open RAN. The vendor stated it deployed more than 1 million radios which are hardware ready for the next-generation of open fronthaul technology. With the new radio platforms released this year, it has a complete open RAN-ready offering across its Massive MIMO and remote radio portfolios. The company further claimed it is leading industrialization through cloudification, open fronthaul and open management for network programmability. Fredrik Jejdling, EVP and head of Networks, said Ericsson believes the biggest revolution in future mobile networks is the introduction of cloud-based open networks, which will enable a move towards fully-programmable mobile networks. As part of its ongoing push around open RAN, the company last week expanded a partnership Google Cloud to develop a hybrid cloud platform to help operators optimize RAN infrastructure.

Near-Field Wideband Channel Estimation for Extremely Large-Scale MIMO

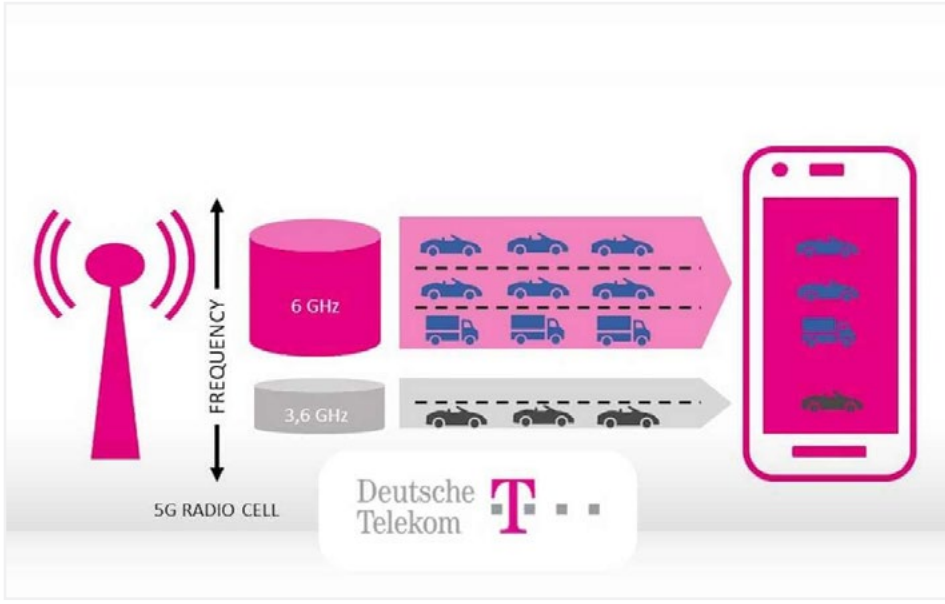
Extremely large-scale multiple-input-multiple-output (XL-MIMO) at millimeter-wave (mmWave) and terahertz (THz) bands plays an important role in 6G networks for its extreme high beamforming gain and abundant spectrum resources. To unleash the superiority of XL-MIMO, accurate channel estimation is of great importance to perform efficient precoding. Unfortunately, as opposed to classical 5G massive MIMO, channel estimation for high-frequency XL-MIMO in 6G faces a serious challenge of "near-field beam split." To elaborate, high-frequency XL-MIMO brings the qualitative paradigm shift from conventional far-field planar-wave communications to its near-field spherical-wave counterpart. In addition, the ultra-large bandwidth at mmWave and THz make the electromagnetic wavefront of different frequency components differ from each other, leading to the undesired beam split effect. The coupling of near-field and beam split effects gives rise to a complex structure of wireless channels, whose estimation is intractable for existing methods. New research, titled "Near-Field Wideband Channel Estimation for Extremely Large-Scale MIMO," was published in Science China Information Sciences. It is co-authored by Mr. Mingyao Cui (first author) and Prof. Linglong Dai (corresponding author) from Tsinghua University, China. In this article, a bilinear pattern detection (BPD) based approach was proposed to accurately recover the high-frequency XL-MIMO channel. First, the bilinear pattern of the near-field beam split effect is revealed, which implies that the sparse support set of near-field channels in both the angle and distance domains can be regarded as a linear function against frequency. Then, this bilinear pattern is used to estimate the angle-of-arrival (AoA) and distance parameters of each near-field path component via a modified simultaneously orthogonal matching pursuit algorithm. Finally, simulation results demonstrated their scheme is capable of achieving high channel estimation accuracy in all far-field/near-field/narrowband/wideband conditions. This paper provides a solution to channel estimation in the presence of near-field beam split. It is expected that the bilinear pattern could be extended to various near-field wideband communication scenarios for addressing near-field beam split issues, such as reconfigurable intelligent surface communications and cell-free massive MIMO communications.

EE Confirmed to Have Carried Out First VoNR Call

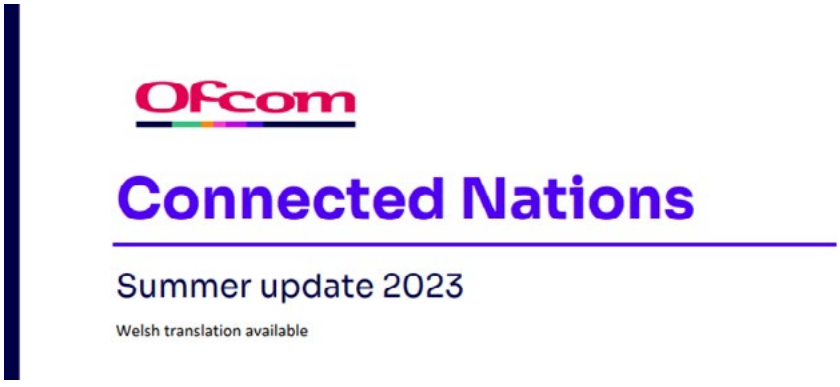
EE, the mobile subsidiary of BT Group, is confirmed to have carried out what is claimed to be the UK's first call using voice-over-New Radio (VoNR) technology. The development was revealed in a press release issued by BT Group regarding EE's progress towards 5G Standalone (5G SA) technology, in which the company also stated that EE has now moved 'the vast majority' of its mobile subscriptions on to its new 5G-ready network core. In parallel, it was reported that EE has continued to upgrade 'many' of its key radio sites across the country, while it has also begun issuing 5G SA-capable SIMs to end users.

Telekom Deutschland Achieves 'World Record' 12Gbps Speed by Aggregating 3.6GHz, 6GHz Bands

Telekom Deutschland has set what it claims is a 'new world record' by achieving download speeds of 12Gbps in a trial in Alzey, Rheinhessen. The test aggregated commercial 3.6GHz 5G spectrum with a 400MHz block of unlicensed 6GHz spectrum, with the peak download speed measured at a distance of 100 meters. The 6GHz band alone was capable of supporting speeds of 11Gbps, Telekom noted. Abdu Mudesir, Head of Technology at Telekom Deutschland, commented: '6GHz spectrum has the characteristic to meet the growing demand of our customers for more capacity and more speed. That is why we hope that the World Radiocommunication Conference will set the direction for mobile radio use.' Telekom began testing 6GHz 5G frequencies in November 2022 in Bonn.



Ofcom: Over Half of UK Can Access Full-Fiber, Mobile Coverage Steady



In the latest release of Ofcom's Connected Nations report, the regulator has provided insight into the state of mobile coverage and broadband availability across the UK. The report, which delves deep into the accessibility of essential services, brings encouraging news regarding full-fiber broadband accessibility and a steady course for mobile coverage.

Full-fiber reaches majority of UK homes

The standout revelation from the report is the availability of full-fiber broadband, which is now accessible to the majority of UK households. 52 percent of homes, equivalent to 15.4 million households, now enjoy the benefits of full-fiber services. The milestone has been primarily achieved by major fiber operators, complemented by smaller providers serving specific communities and regions. Moreover, the report reveals that gigabit-capable broadband is now accessible to 75 percent of UK homes—a slight increase from the previous figure of 73 percent. Superfast broadband, defined as download speeds of at least 30 Mbit/s, continues to maintain 97 percent availability across the country. The remaining three percent of properties, mainly located in challenging-to-reach areas, may benefit from recent publicly-funded initiatives aimed at bridging this connectivity gap.

Steady mobile coverage

The report indicates that while mobile coverage hasn't witnessed a significant increase since the last update, the industry is actively working on expanding its coverage. Approximately 93 percent of the UK is expected to have reliable outdoor 4G coverage from at least one operator. This figure is anticipated to rise to 95 percent by the end of 2025, courtesy of the Shared Rural Network initiative. However, certain geographic and road areas in the UK continue to suffer from 4G not-spots—where no mobile operator provides reliable service. Geographic not-spots have marginally decreased from eight percent to seven percent since the previous report, while road coverage remains largely consistent—with just four percent of all roads designated as in-vehicle not-spots. These figures vary significantly across different nations, particularly in Scotland and Wales. Regarding calls and texts, coverage remains relatively stable. Mobile operators offer a range of predicted coverage from 85-93 percent of the UK, depending on the operator. Additionally, 99 percent of all UK premises are expected to have outdoor voice call coverage from all mobile operators.

REGULATORY NEWS

CST Publishes Frequency Spectrum Regulations for Maritime Services

The Communications, Space and Technology Commission (CST) of Saudi Arabia has published the Frequency Spectrum Regulations for Maritime Services, which aims to regulate the use of maritime radio services, raise the efficiency of spectrum use by organizing the channels for these services, and ensure international harmonization to protect these services from harmful interference. The document highlights the main elements for regulating maritime services, such as types of licenses, management of numbering resources, technical terms and conditions for licensing, and frequency allocations for maritime radio services. The maritime radio services are of essential help to the maritime sector, in communications, navigation, distress and safety. According to CST, this document plays a role in managing the use of maritime radio services, raising the efficiency spectrum use in the Kingdom, according to best international practices, and providing spectrum for all maritime radio services in the Kingdom while ensuring compliance with international regulations and protection from wireless interference. The document can be viewed on CST website.

ARPCE Issues Formal Notice to Airtel and MTN Over SIM Registrations

The Republic of Congo telecoms regulator, the Regulatory Agency for Electronic Communications and Post (L'Agence de Regulation des Postes et des Communications Electroniques, ARPCE), has issued a new formal notice to the country's incumbent mobile operators, Airtel Congo and MTN Congo, regarding failures related to SIM registration. In a press release regarding the matter, the data presented by Benjamin Mouandza, Director of Electronic Communications Networks and Services, revealed what he termed 'a general weakness in the identification process, and demonstrates that the ban on the sale of pre-activated SIM cards decreed by the law is not respected by the operators. Having conducted a number of SIM registration checks between 4 July and 4 August in more than 16 locations across the country, the ARPCE said it had recorded mixed results. According to the regulator, Airtel was found to have registered only 40% of SIMs on average during the monitoring period, albeit that this was up from 19% in 2022. For its part, MTN was said to have registered 48% of SIMs correctly, unchanged from the regulator's findings for that provider a year earlier. There were reportedly some bright spots with Airtel said to have been found to register 100% of SIMs in the Ngo district, while MTN did likewise in the town of Gamboma, and both achieved 100% registration rates in Kinkala. More damning, however, was the ARPCE's claims that it had found that both cellcos had failed to correctly register any SIMs whatsoever in some larger cities, including Pointe Noire and Dolisie. For the capital, Brazaville, meanwhile, the regulator said Airtel and MTN had registered just 7% and 22% of SIMs correctly, respectively.

Oman's Ministry of Information Implements Extensive Upgrade with UBMS and EVS

Oman's Ministry of Information has taken significant strides to modernize its broadcasting capabilities, embracing technological advancement to enhance its media infrastructure. In collaboration with Dubai systems integrator United Broadcast and Media Solutions (UBMS), the ministry has embarked on an ambitious project to upgrade its Avid production asset management (PAM) and iNews newsroom computer system (NRCS) at two of its sites in Muscat and Salalah. After a rigorous and critical evaluation process that began with an RFP in 2017 and only ended early last year, the project was completed in July 2023. Although the project deployment itself took only eight months, it was not without its challenges owing to the disruptions caused by the pandemic, which led to delays in delivering essential infrastructure components such as network switches, Dell servers and client PCs. Parwaiz Anjum, a consultant with UBMS, led the charge in upgrading and replacing the Avid PAM and iNews NRCS systems. The project's scope extended to expanding the central apparatus area (CTA) and introducing EVS' new MediaCeption Signature, a complete end-to-end live production asset management (PAM) solution to replace the existing Avid solution. Additionally, Adobe Premier edits were adopted in place of Avid Media Composer, alongside the implementation of Media Central and new client PCs. Additionally, Adobe Premier edits were adopted in place of Avid Media Composer, alongside the implementation of Media Central and new client PCs. EVS MediaCeption Signature is integrated with the existing Tedial MAM system at the site to achieve the Archive and Restore workflow and send clips from the PAM to the current playout system. The project's foundation lay in the modernization of server, network and hyper-converged infrastructure. Anjum and the SI team oversaw the installation of the latest generation of XS-VIA servers for the EVS PAM and Avid iNews systems. A notable enhancement was the upgrade of the PAM Network backbone to 100G and the edge network to 10G. The collaboration between Adobe NLEs and XS-VIA servers was fortified by a dual 10G network, significantly improving system performance. An important technical highlight is the new virtual environment, which gives flexibility to add VM instances when required. "VMware vSphere powers the system to virtualize the servers and host multiple virtual machines. While this reduces the rack space and power consumption, it increases the flexibility for the system administrator and gives scalability for future expansion," explains Anjum. One major reason for the upgrade was that the existing PAM and NRCS, installed back in 2012, had reached the end of their life. "The legacy system had multiple hardware failures and was no longer supported, so the client decided to replace it with a brand-new solution that offers better workflow and support," explains Anjum, adding that the team stuck with DNxHD 120, the ministry's house format.

Supreme Court Rejects Plans to Upgrade ClaroVTR 3.5GHz Rights

Chile's Supreme Court has rejected plans to allow ClaroVTR to use its 3.5GHz band spectrum for 5G services on the basis that the frequencies must be assigned through a public tender, La Tercera reports. ClaroVTR had sought permission from the Department of Telecommunications (Subsecretaria de Telecomunicaciones, Subtel) to use airwaves previously assigned for fixed wireless voice services for 5G. Following a consultation with the Antitrust Tribunal (Tribunal de Defensa de la Libre Competencia, TDLC), Subtel granted provisional approval to the telco earlier this year, but the decision was challenged by rival operator WOM, culminating in the recent ruling from the apex court.

TRA Oman Organizes Workshop on 3G 'Shutdown' Plans

As part of the preparations for the gradual stopping of 3G Internet services, the Telecommunications Regulatory Authority (TRA) organized a workshop for sectors such as the banking sector, public services, and oil and gas, which are expected to be affected by the suspension. The workshop was aimed at discussing the reasons for stopping 3G services and identifying the challenges to ensure the ease of transition to the 4G and 5G services. The workshop reviewed international experiences in stopping 3G services, and the participants were briefed on the numbers and types of devices that operate only with 3rd network. By stopping 3G services, the authority seeks to invest in modern and advanced technologies, improve network efficiency, reduce operations and maintenance costs, keep pace with the acceleration and technological development, and improve sustainability, which enhances the security and safety of information and networks and enhances the experience of users of 4G and 5G networks. TRA will carry out a limited experiment to stop the 3G services, according to plans prepared in coordination with the telecommunications companies, to identify the challenges in preparation for the start of the gradual suspension in the third quarter of the year 2024.

Ofcom UK Urges Industry Progress on Phone Number Porting

The UK telecoms regulator, Ofcom, has written to the Office of the Telecoms Adjudicator (OTA) as part of efforts to encourage the adoption of changes to improve phone number porting between providers, ideally in time for the revised launch of the One Touch Switch (OTS) migration system for broadband ISPs. At present the OTS system, which has suffered significant delays (here) and isn't now expected to be introduced until 14th March 2024, is primarily focused on making it quicker and easier for consumers on any broadband provider to switch ISP – regardless of the underlying physical network. Phone number porting is also covered by the OTS system, but it doesn't really do much in terms of tackling some of the long-standing problems with number portability itself. For example, trying to split your home number out from a broadband package (e.g. in order to put it on a VoIP line) remains a tedious nightmare (details), which can result in disconnection. Number porting also remains a somewhat slow and manual process when done separately, which can attract extra porting costs. In fairness, Ofcom has at least managed to introduce a "Right to Port", which requires phone operators to provide phone number porting to customers that request it for at least 30 days after the termination of a contract, unless the customer expressly agrees otherwise when ending their contract (mobile operators do this too). This makes it harder for ISPs to shun any responsibility when a number goes missing during a switch. However, the OTA has been working with the telecoms industry to explore further improvements to number portability, which is something that Ofcom has been trying to keep aligned to the OTS system for hopefully obvious reasons. Sadly, progress on this front has been generally a bit unclear, although the regulator has just written a new Open Letter to the OTA that appears to highlight some positive developments ("express porting ").

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