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Harnessing Technology for National Growth: Ooredoo Oman's 2024 Ambitions

> Bassam Yousef Al Ibrahim, CEO, Ooredoo Oman

How the World Wide Web is Fueling Today's Digital Lifestyle and Connectivity The Telecommunication Sector's Role in the 'Economy of Things'

5G-Advanced: Breaking the Digital Barrier for a More Connected World



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Ooredoo Oman remains at the forefront of the industry and continues to contribute significantly to Oman's digital advancement. **Recognizing the efforts** of this transformational telco, Telecom **Review conducted an** exclusive interview with CEO, Bassam Yousef Al Ibrahim, to better understand the telco's role in formina the backbone of a digital society, and its multifaceted approach to communication and technology convergence.

> t has been a year since you've been appointed as the CEO of the company.
> What have been the highlights of your journey so far, and what is your ultimate
> goal for Ooredoo Oman in

Since assuming the role of Chief Executive Officer of Ooredoo Oman a year ago, I have been privileged to witness great strides in our journey. Our digital world is evolving at a rapid pace, and our commitment and holistic approach toward digital transformation has enabled us to maintain momentum in our mission to upgrade the worlds of our B2C and B2B customers through connectivity and innovation.

2024?

We have continued our digital-first strategy, staying focused on being agile and adaptable, which is in line with

Bassam Yousef Al Ibrahim, CEO, Ooredoo Oman

Harnessing Technology for National Growth: Ooredoo Oman's 2024 Ambitions Ooredoo Group, while our approach is also guided by Oman Vision 2040 the nation's roadmap for long-term, socio-economic development, which includes establishing a diversified economy, creating sustainable cities, and facilitating privatization and Omanization. With a primary focus on upgrading the customer experience and fostering national development, Ooredoo has consistently aligned its strategy with Oman Vision 2040 and is a testament to our commitment to the nation's progress.

We have also reaffirmed our commitment to providing the best value to our team, customers and other stakeholders, recognizing their pivotal role in our ongoing success. As we look forward to the remainder of 2024, our goals are not just clear, they are beacons of the future and ones that drive further growth, and maintain a truly unique customer-centric approach that starts from within the organization and extends to every customer.

With this at the heart of what we are doing and alongside our tech developments, 2024 is already on track to be a year of progress. From the ongoing roll-out of 5G, to the expansion of our data center infrastructure across Muscat, Barka, Salalah, and Sohar, we are leading the way with tech. And this was most recently evident in our launch of 'walletii by Ooredoo,' marking our entry into fintech and further underscoring our commitment to digital transformation.

Looking beyond this year, as part of our forward-thinking approach, we will remain committed to our promise to upgrade our customers' world and relentlessly push innovation. This pace and drive will continue, alongside our important work with local communities, to provide sustainable support, education, business skills and to enhance lives countrywide. Our promise for the future is our firm commitment to maximizing value for existing customers, driving loyalty, leveraging technologies, increasing engagement and making a difference to people across Oman.

In 2023, Ooredoo Oman announced that its 5G was 'everywhere and



anywhere' in Oman. How important is ensuring connectivity and accessibility in the telco's strategy for success?

The Government's vision for the future of Oman is inspiring; building on efforts already made to engage the Omani youth in a nation-building process and encouraging entrepreneurship. The plans emphasize comprehensive development across various sectors, including tourism, manufacturing, energy, ICT, transport, mining, and agriculture, and special economic and free zones.

This long-term and sustainable approach encompasses economic diversification and social wellbeing and sets the stage for Oman to become a leading regional hub for tech and innovation. A laser-focus on broad digital transformation accelerates economic growth and diversification further, thus, strengthening the nation's standing in the global knowledge and information economy.

In this context, in 2023, we proudly announced the successful rollout of our nationwide 5G network, which delivers an excellent digital experience, providing We will remain committed to our promise to upgrade our customers' world and relentlessly push innovation



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We contribute to Oman's long-term socioeconomic development and reinforce our commitment to the nation's future

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connectivity even in remote areas. We are committed to meeting the nation's growing hunger, digital and connectivity needs and our 5G network offers faster speeds, higher capacity, lower latency, increased flexibility, and increased reliability.

The Telecommunications Regulatory Authority's recent report confirmed our network's unparalleled average download and upload speeds, meeting the needs of households with heavy internet usage and businesses seeking efficiency improvements, regardless of their location. 5G benefits customers and businesses of all sizes, helping them grow, learn, be entertained and fuel the nation's growth.

5G also supports transformative technologies such as IoT, virtual reality and AI. Therefore, our 5G network also drives new revenue streams and fosters growth by enabling advanced technological applications. Meanwhile, our fintech, cloud solutions, and SD-WAN (which rely on this cutting-edge connectivity) further positions Ooredoo at the forefront of tech innovation. On this note, we are grateful for receiving several awards that recognize Ooredoo's contributions to Oman's transformation into a knowledge-based and technologically advanced economy. Economic diversification remains essential to Oman's long-term stability as it creates economic growth and employment opportunities and boosts Oman's global and regional presence. We are excited about our role in this continued drive and being part of a national economy that is flourishing.

The Middle East region's digital transformation progress is very notable. How will Oman keep up with this pace, and what is Ooredoo Oman's commitment in relation to supporting the nation's long-term vision?

The government is prioritizing ICT in its national development plan under Oman Vision 2040, which places broad digital transformation at its core, aiming to accelerate national economic growth and bolster Oman's position in the global knowledge and information economy. Ooredoo is fully committed to supporting this vision by meeting increasing consumer demand for digital solutions and seamless interactions. As the backbone of a digital society, we are no longer just providers of communications networks but have become multifaceted technology enablers, delivering customer-centric solutions.

My vision for the company aligns with Oman's national priorities, focusing on continued growth, and maintaining a customer- and team-centric approach. By advancing these objectives, we contribute to Oman's long-term socioeconomic development and reinforce our commitment to the nation's future.

As a telco leader, what trends do you think will continue to impact Oman's telecom industry? Which verticals will Ooredoo Oman focus on in the near future?

As a leader in the telecom industry, we foresee several trends developing in the region. In recent years, telcos have focused on growing B2B and B2C revenues by offering products and services that leverage an experience beyond providing core connectivity. To stay ahead, our company and the industry must embrace technologies such as IoT, cloud services, big data, edge computing, AI and fintech. And talking of fintech, we recently announced our imminent launch of 'walletii,' in Oman. In cooperation with Ooredoo Fintech, a wholly owned subsidiary of Ooredoo Group, this true fintech revolution, evident in our customers' pockets, is a user-friendly mobile wallet designed to simplify and secure consumer financial transactions.

Besides this, our flagship data centers in Muscat, Barka, Salalah, and Sohar support local businesses and communities with secure incountry hosting, recovery, and cloud services. By integrating all of these technologies, we pave the way for new growth opportunities and new market strategies. In the near future, Ooredoo will increasingly engage with these verticals, many of which are already part of our day-to-day operations. We will be supporting our own transformation and positioning ourselves as leaders in the telecom industry.

With our strategic and heavy investment in 5G deployment, we are also providing a connectivity landscape with ultrahigh internet speeds to open up doors for businesses and government to create new revenue streams. And leveraging 5G ourselves, we can offer more products, solutions, and services, which are scalable, flexible and meet specific needs, for both businesses and consumers.

We also continue to invest in talent pools, identifying and attracting talent with the expertise and abilities each new transformative technology requires.

What makes Ooredoo Oman unique as a telecom operator, and how will the company maintain its position as one of the top Omani brands in the coming years?

Ooredoo stands out as a unique telecom operator by playing a vital role in supporting the country's evolution. We pride ourselves on being the



leading digital infrastructure provider in the region, having transformed into a telecom and infrastructure holding company with a delayered multibusiness structure. This transformation positions us to meet the demands of the ever-changing digital world efficiently.

Our strategy focuses on optimizing capital deployment and operational efficiency to increase asset returns across various domains, including telecommunications operations, towers, data centers, sea cable business, and fintech. By continuously deploying technology on a significant scale, we build a competitive advantage, enhance customer experience, and optimize efficiency.

In the coming years, we will maintain our position as one of the top Omani brands by leveraging our robust digital infrastructure, focusing on innovation, and delivering superior customer-centric solutions. This approach ensures we remain at the forefront of the industry and continue to contribute significantly to Oman's digital advancement. We will maintain our position as one of the top Omani brands by leveraging our robust digital infrastructure, focusing on innovation, and delivering superior customer-centric solutions



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انظم إلى مستقبل الإنترنت مع 5G

JOIN THE FUTURE OF CONNECTIVITY WITH 5G



Haithem Mohammed Alfaraj, Group Chief Technology Officer, stc Group



t stc Group, we are dedicated to driving innovation beyond connectivity, offering consumers and

businesses products and solutions for our increasingly digital lives.

Our integrated portfolio encompasses a wide range of transformative technologies, including infrastructure, cloud computing, cybersecurity, the Internet of Things (IoT), digital payments, and media and entertainment. These solutions cater to a diverse array of sectors, from healthcare and logistics to large-scale projects and the sports industry.

At the heart of stc Group's mission lies Saudi Arabia's bold vision to become the world's most connected and digitalized nation by 2030. Fundamental to these ambitions are investments in and the exploration of the ever-evolving domain of AI.

Saudi Arabia has a plan to create a USD 40 billion fund dedicated to AI Investments. The Kingdom has also launched a USD 1 billion startup accelerator to attract AI entrepreneurs. This is made possible via the support of global industry leaders like Amazon,

Driving Digital Transformation Through World-Class Connectivity Across Sectors

At stc Group, we are dedicated to driving innovation beyond connectivity, offering consumers and businesses products and solutions for our increasingly digital lives.

which announced a USD 5.3 billion investment in Saudi Arabia for data centers and AI technology at LEAP 2024.

As a driving force behind Saudi Arabia's digital transformation, we are dedicated to harnessing the transformative potential of connectivity and AI, driving operational efficiencies, and unlocking new frontiers of growth across economy sectors.

Through solid and mature infrastructure, cutting-edge research, strategic partnerships, and the deployment of state-of-the-art Alpowered solutions, we are steadfastly working to position Saudi Arabia at the forefront of the global Al revolution.

Leveraging this exciting tech landscape taking place right at the heart of our nation, stc Group will continue to use best-in-class technology and infrastructure to lead the way in enabling seamless connectivity between people, businesses, and the kingdom, effectively connecting the world.

Pioneering AI-Powered Network Optimization with Nokia

For the first time, stc Group has deployed an AI-powered operations system on our network using Nokia's MantaRay Self-Organizing Network (SON)—an AI-powered operations system that automates network optimization. The customized AIpowered MantaRay SON system was successfully utilized during the Hajj season.

Despite an increase in network traffic of over 40%, stc networks processed over 10,000 actions during its live network implementation, increasing utilization rates by approximately 30% on loaded cells and improving user throughput by 10% on average, enabling over one million pilgrims to stay seamlessly connected.

This successful operation reduced manual work, improved network quality, and paved the way for the future of AI automation in telecommunications infrastructure, allowing networks to operate autonomously and efficiently.

Technological Innovation in Collaboration with Industry Peers

Strategic partners, collaborators, and prominent industry players are fundamental to the success of stc Group's initiatives, which are driving digital transformation. This year, we expanded our partnerships to include:

Oracle Alloy: We introduced a new sovereign cloud platform



offering more than 100 Oracle cloud services, empowering enterprises to capitalize on hyperscale cloud services while addressing data residency and sovereignty requirements.

- Ericsson: Our partnership showcased the world's first live augmented reality (AR) and physical movement esport, "HADO," revolutionizing the industry's potential for 5G technology and cloud gaming.
- **Huawei:** This strategic alliance focuses on developing new business portfolios underpinned by innovative solutions in fintech and app development.
- GalaxySpace: Together, we explored a space-to-ground integrated network and directto-device satellite technologies.
- Bolttech: We aim to embed IoTenabled solutions beyond mobile devices across digital lifestyles, including protection for home appliances, health electronics, and cyber assets.
- **Cisco:** We signed multiple agreements with Cisco to modernize and unify our Network Operations Center (NOC) and elevate stc Academy services through knowledge sharing and developing learning programs.

Additionally, stc Group has tackled the challenges and difficulties faced by various hyperscalers, particularly in bridging capability gaps in areas like AI, cloud, edge computing, and IoT. We have developed and tested proof-of-concepts (PoCs) to create innovative solutions that effectively meet our customers' needs.

As a result, stc Group has leveraged its strengths as a provider of worldclass connectivity and partnered with specialized organizations. stc Group will continue investing in cuttingedge infrastructure, keeping us at the forefront of digital transformation.

Showcasing Technological Ecosystems

At key industry events around the world, including LEAP, MWC Barcelona and Capacity Middle East, we have presented a wide array of our innovative technological ecosystems.

Our Digital Stadium showcase, for instance, conveyed the future of smart sports stadiums and optimized fan experiences through 360-degree camera views, state-of-the-art command control centers, and remote clinics.

Our Logistics Exhibit demonstrated how our innovative solutions streamline processes from manufacturing to retail, connecting value chains and mining zones.

Our Digital City exhibition highlighted services and solutions empowering the digital operations of Saudi Arabia's megaprojects, such as smart navigation solutions and connectivity infrastructure development.

Our Health-Tech Exhibition showcased state-of-the-art solutions in population health management and virtual clinics, building on stc Group's presence at several major industry events, including the 2023 Arab Health conference.

The Future of Innovation

Innovation at stc Group is in the DNA of the organization. Innovation has been one of the main sources for ideas that resulted in successfully launching products and solutions, sustainable operations, and promising investments.

For example, the launch of our corporate venture capital arm, tali ventures, serves as a catalyst for innovative startups.

In addition, FWD Innovation Lab and Colab serve as an internal empowerment machine that nurtures innovative ideas at the stc Group level.

Augmented with impactU, stc Group is fulfilling its role in harnessing nature's resources in a responsible and sustainable fashion. This initiative underscores our commitment to propelling technological advancement and fostering a vibrant entrepreneurial ecosystem across our operating markets.

tali ventures has already made significant strides by investing in startups such as Nile (network equipment solutions), Rewaa (inventory management solutions), and NearPay (digital payments solutions).

The launch of tali ventures marks a pivotal moment in our journey to empower the world's brightest minds. We aim to be a leading force in nurturing entrepreneurial talent and advancing groundbreaking initiatives. At stc Group, we are committed to supporting revolutionary startups through collaborating with renowned global funds such as Sanabil and Prosperity7.

At stc Group, we do not just work sustainably to provide world-class connectivity for people, businesses, and communities around the world; we see connectivity as a foundational principle to progress, ensuring that technology can empower us, creating an inclusive digital future.



Executive Director – Sales, Es'hailSat

Es'hailSat's Journey to Becoming a World-Class **Satellite Operator** and Service **Provider**

In an exclusive interview with Telecom Review. Mohamed Al Sayed, Executive Director -Sales, Es'hailSat, stated that the MENA region holds tremendous potential for expanding connectivity services. Es'hailSat actively contributes to realizing this potential by prioritizing service expansion across all possible satellite services and supporting the rapid growth of Qatari customers.

ow does Es'hailSat differentiate itself in the satellite industry, and what

competitive advantages does it possess?

With an average fleet age of under 9 years, we at Es'hailSat have one of the youngest fleets of any satellite operator in the Middle East and North Africa region. Our existing satellites, Es'hail-1 and Es'hail-2, co-located at 25.5° east/26° east respectively, are well positioned to serve the needs of broadcast and telecom customers across the board. Coupled with our 50,000 square meter, state-of-the-art teleport facility in Doha, the satellites provide the infrastructure needed for any broadcaster, telco, enterprise or government customer to deliver their services, and allow us to cater to their growing needs.

Our plans are to continually upgrade our capabilities in terms of our teleport, ground segment and managed services to be able to leverage our young fleet in orbit today. Together with our satellites, the strategic location of our teleport in Doha allows us to cover all of the Middle East, North Africa and a large part of the broader EMEA region with our services.

Es'hailSat has been instrumental in revolutionizing the broadcast landscape in the region. Can you expand on the impact of Es'hail-1 and Es'hail-2 on enhancing the coverage and transmission capabilities of broadcasters?

Over the course of the past year, we have added more than 20 new TV channels to our video hotspot across the two satellites. This itself is testament to the fact that customers trust us with their TV channel bouquets and our market share is secured as a result.

Furthermore, we have launched playout and media services to deliver a simple, elegant and one-stop solution to broadcasters that want peace of mind in their operations.

Lastly, via partnerships such as the recent MoU with Nilesat and Total Media Cast (TMC) and others, we are able to serve our customers in regions that are beyond our home country. We can provide them with services that would have originally taken many years for any other company to put together.

Considering the crucial role innovation plays in Es'hailSat's strategy, how does the company incorporate emerging technologies such as satellite constellations, Earth observation analytics, and direct-to-device enabling into its operations?

At this point, the global satellite industry is experiencing an influx of multiple low Earth orbit (LEO) constellations at various stages of their launch, each looking to provide global broadband connectivity. LEO systems are relatively young and unproven, so the recent surge of announcements about new constellations can be seen as a bit of a 'gold rush.' While there's a lot of excitement and potential, we think it's important to approach this trend with cautious optimism.

A lot needs to be done before these systems become integrated into the 5G ecosystem and the sheer volume of capital and technological advancements required make it an uphill battle for the companies involved.

Additionally, we are exploring new business models encompassing both Earth observation analytics and direct-to-cell technologies to see where we can provide maximum value to our customers.

5G non-terrestrial networks (NTN) will complement our existing satellite infrastructure and provide a more efficient way to deliver high-speed data and voice services to remote locations. In addition to supporting IoT and M2M applications, they can also provide reliable means of communication in disaster affected areas.

As the demand for satellite services evolves, how does Es'hailSat plan to adapt and expand its capabilities to meet the needs of various sectors such as broadcasters, businesses, and governments?

On the broadcast side, the MENA region has a mix of users who prefer streaming services as well as a healthy number who still want to consume their premium HD content on a smart TV over a satellite DTH service. Due to this underlying demand demographic, we continue to remain bullish in terms of the future of satellite television in the region for many years to come.

On the data side, be it cellular backhaul, or VSAT networking, or even consumer broadband, we have the capabilities to support the companies looking to provide these services across MENA today, and hopefully across the globe very soon. The MENA region holds tremendous potential for expanding connectivity services given the unique challenges faced by the countries here. While fiber continues to reach the shores of various countries in North Africa, getting the same connectivity inland and overcoming the challenges on-the-ground is a different story altogether.

We are working on multiple long-term projects to fulfil the company's vision of becoming a world class satellite operator and service provider that effectively contributes to the success of Qatar's National Vision 2030.

What were the milestones of 2023, and what future trends do you foresee in the satellite industry for 2024?

In the past year, we have added playout and media services to our product and services portfolio. These are delivered via our teleport facility in Doha and allow for a hybrid service that can be on premise or cloud based as required by the customer. The fact that we have added more than 20 new TV channels to our video neighborhood is one of our biggest milestones for 2023.

Furthermore, we have also enhanced our satellite news gathering capabilities via our partnership with Total Media Cast (TMC), thereby catering to the many live events taking place in Qatar and in the region.

Our future entails not only being a satellite operator but a service provider, and we see opportunities where we can support our existing (or new) customers with value added services, through partnerships and vertical integration.

For Es'hailSat's business, the priority over the next 12 months is expanding services across all possible satellite services to support the rapid growth of Qatari customers.

Es'hailSat remains the first choice for companies across the MENA region wherever there is a need for connectivity over satellite.



e& UAE: Taking the Lead with One of the Largest IT Transformation Programs

e& UAE has embarked on an ambitious transformation journey, repositioning itself from a traditional telecom operator to a tech-driven enterprise. This shift represents a core change in e& UAE's approach to value creation and delivery.



cash journey, to enabling self-service and improved customer care. This overhaul is vital for staying competitive in a rapidly changing industry influenced by technological progress and evolving customer expectations.

The primary goal of the transformation is to accelerate time-to-market

(TTM) by integrating its operations into a unified BSS stack, which significantly speeds up service delivery across all channels and customer segments. This leads to a superior digital experience that emphasizes a seamless and intuitive user interface, which is crucial in the current digital era. Additionally, the transformation focuses on revamping service delivery processes to boost efficiency and flexibility in adapting to market shifts and customer needs. Customers will enjoy a consistent and integrated experience across all touchpoints, facilitating interaction through their preferred methods seamlessly.

In line with similar objectives, e& UAE is committed to transforming its digital channels, customer care, and service management platforms to be fully cloud-native and digitally optimized.

In summary, e& UAE's digital transformation journey is a strategic transformation that aims to overcome current challenges and position it for future growth and success. e& UAE focuses on enhancing operational efficiency, improving customer experience, and meeting the everevolving demands of the market, ultimately enabling the creation of new revenue streams.

Three-Pillar Strategy: 5G, Cloud and Data

e& UAE's strategy is centered around three pivotal pillars: 5G evolution, multi-cloud adoption, and AI acceleration. These pillars define e& UAE's commitment to innovation and pave the way for significant advancements in its techco transformation.

At the forefront of e& UAE's strategy is the development and monetization of 5G technology. 5G presents several aspects of service evolution and capabilities to customers, such as:

- Ultra-High Speed: High-speed data transmission aims to exploit the ultra-fast data transfer capabilities of 5G to support advanced use cases. This will enable richer and more immersive experiences for our users.
- Business Differentiated Services: Network slicing and mobile private networks will cater to specific industry needs, ensuring tailored performance and security.
- Ultra-Low Latency Services: One of e& UAE's primary goals is to reduce communication delays significantly.

This is crucial for applications that require real-time data processing and feedback, such as autonomous vehicles, smart grids, and remote surgeries.

 Massive Machine Type Communication Use Cases:
Enhances connectivity to facilitate massive machine-type communications (mMTC) to support expansive IoT ecosystems and smart cities. This will ensure seamless interconnectivity between a vast number of devices.

e& UAE is continuing its leadership in 5G network evolution by upgrading the network to support 5G-Advanced, unlocking multiple advanced use cases supported by the deployment of additional frequency layers. This enables higher capacities in dense areas and enhances fiber backhaul capabilities.

Central to this evolution is the deployment of private 5G networks and tailored solutions that cater to the unique digitization needs of critical sectors such as oil and gas, government entities, and ports.

e& UAE recently partnered with ADNOC to build the largest private 5G network in the energy sector. This underscores e& UAE's commitment to driving digital transformation across industries.

In parallel with its 5G initiatives, e& UAE has embraced a robust multicloud strategy to harness the full potential of cloud computing. By leveraging the scalability, flexibility, and cost-effectiveness of cloud solutions, e& UAE is enhancing operational efficiency and fostering innovation across its infrastructure.

This multi-cloud approach integrates hyperscalers and on-premise clouds, offering a balanced framework that optimizes cost efficiencies and ensures stringent security compliance. Automation plays a strategic role in this strategy, streamlining cloud demand management and provisioning across multiple platforms. This unified approach not only simplifies workload management but also enhances agility and responsiveness to dynamic market demands.

Partnerships with leading hyperscalers like Microsoft and Oracle are important in expanding e& UAE's cloud footprint within the region. These collaborations are instrumental in hosting critical cloud setups within the UAE, ensuring data sovereignty and enabling seamless cloud migration for businesses across various sectors. By partnering with multiple hyperscalers, e& UAE leverages the unique capabilities and strengths of each hyperscaler, resulting in innovative new services and experiences.

Data analytics and artificial intelligence (AI) form the cornerstone of e& UAE's strategy to drive business insights and enhance decision-making processes. Adopting an AI-first approach, e& UAE is leveraging AI capabilities to automate processes, elevate customer experience, and deliver predictive insights on network performance and service optimization.

Machine learning (ML) algorithms are continuously being refined to adapt to the market's requirements and improve services based on real-time data insights. By integrating data from diverse sources into a unified analytics environment, e& UAE gains comprehensive visibility into network operations and customer behavior. This data-driven approach not only enhances operational efficiencies but also enables proactive decisionmaking and personalized service delivery.

e& UAE is fostering the development and deployment of AI-powered applications to improve operational efficiency and customer experiences. Ensuring that AI and machine learning (ML) models are continuously updated and refined based on new data and insights will keep e& UAE at the forefront of technological innovation.

As e& UAE continues to pioneer advancements in 5G, cloud computing, and AI, it stands at the forefront of a transformative era in telecommunications and digital infrastructure. This transformation will not only enhance its operational efficiency but also significantly improve the experiences we offer to our customers.



Carlos Casta, Very High Broadband Practice Leader, Sofrecom

Can a Single Broadband Technology Suffice for Operators?

As the digital age progresses, the demand for available, accessible, secure and reliable, ultrafast broadband connectivity has reached unprecedented levels. The services offered to customers across various devices have become increasingly diversified, and the need for integrated services is now more critical than ever.

perators in the Middle East face a crucial question: can a single broadband technology suffice to meet the diverse needs of their customers? At Sofrecom, we believe that the future of operators lies

in adopting Fixed Mobile Convergence (FMC) models. These models leverage a strategic mix of technologies, addressing the quality and continuity of services at the right cost and enhancing the resiliency of networks.

So, how important is 5G as a lever for a high-performance technology

mix? What roles do the different broadband technologies play? And how can telecoms operators optimize their investments while ensuring full coverage and quality of service?

The Importance of a High-Performance Technology Mix

The rapid evolution of internet usage and the increasing reliance on digital services necessitates a broadband strategy that is both resilient and adaptable. Relying on a single technology may lead to limitations in coverage, capacity, reliability, and the overall development of the operator's services. Instead, a harmonious integration of multiple technologies can offer a comprehensive solution that leverages the strengths of each.

Fiber Optics: Known for its high capacity and speed, fiber optics is essential for urban areas where highdensity data usage is prevalent. It provides a stable and robust backbone for other technologies to be built upon. Fiber optics can handle vast amounts of data, making it ideal for cities where internet demand is continuously growing. Its reliability and speed make it the preferred choice for supporting high-bandwidth applications such as streaming, online gaming, and largescale business operations. Additionally, fiber networks can be deployed both underground and aerially, offering flexibility depending on geographic and economic contexts. However, its deployment must be carefully planned to generate a high return on investment (ROI) and ensure operational performance.

Satellite Connectivity: In contrast, satellite connectivity plays a pivotal role in remote and underserved regions. It ensures that even the most isolated areas have access to broadband services, bridging the digital divide and promoting inclusivity. Satellite technology is particularly valuable in areas where laying fiber optic cables is not feasible due to geographical or economic constraints. By using satellites, operators can provide internet access to rural and remote areas, ensuring that no community is left behind in the digital age. Recent advancements in low Earth orbit (LEO)

satellites have further enhanced the potential of satellite connectivity, offering improved latency and bandwidth.

5G Technology: The advent of 5G offers unprecedented speed and low latency, crucial for applications like IoT, smart cities, and autonomous vehicles. Its flexibility in deployment makes it a valuable component of the connectivity mix. 5G technology supports a massive number of connected devices, enabling smart city initiatives and advanced technological applications that require real-time data processing and minimal latency. This makes 5G indispensable for future-proofing networks and supporting emerging technologies. Moreover, 5G Fixed Wireless Access (FWA) can provide high-speed internet without extensive infrastructure, making it a cost-effective solution in areas where fiber deployment is impractical.

5G represents a major advance in the network technology mix, offering higher broadband rates, ultra-low latency, and denser coverage. In Europe, its adoption will reach 44% by 2025, and up to 70% in the USA and Asia. 5G standalone (5G SA) facilitates new use cases such as connected cars, cloud gaming and smart cities, thanks to innovations such as network slicing and improved energy performance. Private 5G networks are essential for industries, offering dedicated and secure connectivity, and supporting a high density of connected devices. 5G also makes it possible to prioritize flows for critical services and guarantees better quality of service. In short, 5G is a catalyst for digital transformation, improving the performance and quality of services for end users.

Addressing Quality and Continuity of Service with Optimized Costs

Operators must consider not only the initial deployment costs but also the ongoing operational expenses. A multi-technology approach allows for better management of these costs while maintaining high-quality service. This strategy ensures that operators can provide consistent and reliable internet connectivity across various environments and customer segments. By leveraging the strengths of each technology, operators can optimize their investments, ensuring that resources are allocated efficiently and effectively.

Fiber can handle high-capacity urban demands, while satellite can cover remote areas without the need for extensive infrastructure. 5G can fill in the gaps, providing mobility and flexibility. Different regions have unique needs and challenges. A multi-technology approach allows operators to cater to diverse customer bases, from densely populated cities to rural villages. This ensures that all customers receive the level of service they require.

Furthermore, the transition from traditional copper networks to FTTH is a critical step for operators, representing a significant challenge but offering substantial benefits. This shift is necessary to meet the growing demands for high-speed and reliable internet services. The decommissioning of copper in favor of FTTH will enable operators to provide more performant and reliable services for their customers, reduce maintenance operations and costs, optimize telecom infrastructure by freeing up space and finance the transition through the recycling of copper.

However, this transition must be executed gradually to minimize disruptions for users, necessitating carefully planned migration strategies. These plans ensure a smooth switch to fiber, allowing operators to maintain service continuity and customer satisfaction throughout the process.

Enhancing Network Resilience and Maintenance

The resilience of a network is crucial for maintaining uninterrupted service. Fiber networks offer significant advantages in terms of resilience and maintenance. However, achieving and maintaining this resilience requires proactive strategies.

One of the most effective strategies is the use of artificial intelligence (AI) in network management. AI allows for predictive maintenance and identifies potential issues before they become critical. By analyzing vast amounts of data from the network, AI can forecast and prevent failures, ensuring continuous service. This predictive capability not only reduces downtime but also minimizes the costs associated with emergency repairs.

Another key aspect of enhancing network resilience is the proactive management of network resources. This includes regular monitoring and assessment of network components to ensure they are functioning optimally. Operators should invest in advanced diagnostic tools and technologies that can detect anomalies and vulnerabilities within the network. By addressing these issues promptly, operators can prevent minor problems from escalating into major disruptions.

Additionally, the deployment of redundant systems and backup solutions is essential for maintaining network resilience. Operators should implement failover mechanisms that can automatically switch to backup systems in the event of a failure. This ensures that service interruptions are minimized and that customers can continue to receive reliable connectivity.

In conclusion, a single broadband technology is insufficient to meet the diverse and evolving needs of the Middle-Eastern market. A strategic mix of fiber, satellite, and 5G technologies offers a robust solution, addressing challenges related to cost, accessibility, and resilience. At Sofrecom, we are dedicated to helping operators navigate these complexities, providing innovative and effective solutions that enhance connectivity and drive digital transformation in the region.

The integration of these technologies not only ensures comprehensive coverage but also optimizes investment, mitigates risks, and prepares networks for future demands. By adopting a multitechnology approach, operators can meet the diverse needs of their customer base, providing reliable, high-quality internet connectivity that supports economic growth and development across the Middle East. With Sofrecom's expertise and innovative solutions, operators can confidently move forward in this dynamic and rapidly evolving digital landscape.

Find out more in our white paper "<u>Unleash the 5G potential.</u>"



Aneth Guerra, COO, Vodafone Oman

ow are Vodafone's digital-native foundation and NEXT-LEVEL solutions empowering businesses in

Oman's digitalized landscape? Vodafone is at the forefront of transforming Oman's business landscape with our digital-native foundation and NEXT-LEVEL solutions. Our vision is rooted in creating a connected tech-telco ecosystem that equips businesses to excel in today's dynamic digital environment. This strategic focus not only supports Oman's economic diversification goals but also enhances technological advancements crucial for sustained growth.

Through our global partnership with the Vodafone Group, we harness extensive expertise and resources to innovate tailored solutions for Omani businesses. This collaboration enables us to introduce pioneering products and services designed specifically to meet local demands and elevate operational efficiencies. Our commitment to understanding and addressing local demands ensures that our solutions resonate deeply with our customers.

Vodafone Oman: Creating a Connected 'Tech-Telco' Ecosystem

Aneth Guerra, COO, Vodafone Oman, addresses some of the key challenges concerning digital transformation in Oman and provides a femaleoriented perspective on the company's approach as a holistic solutions provider.

Central to our strategy is our 5G NEXT LEVEL network, which acts as the backbone of our offerings and enables the introduction of advanced technologies. Beyond products, we focus on comprehensive service offerings designed to enhance business operations. For example, our recently launched BLACK for Business postpaid plans are designed to elevate Oman's business services. These plans are evident in four key service features:

- 1. Our user-friendly self-service portal empowers businesses to manage their mobile communication needs quickly and digitally, providing flexibility and control.
- 2. The hybrid model we adopted allows employees and administrators to customize their services, preventing bill shocks and ensuring cost predictability.
- 3. Addressing an important customer pain-point, we added our popular 'Take Your Home Tariff Abroad' feature to our plans, enabling customers to travel while enjoying their packages as if they were in Oman, providing peace of mind and seamless connectivity.
- 4. Last but certainly not least, we offer dedicated account management, via which we offer personalized support tailored to each business's

needs, ensuring prompt assistance and expert guidance, regardless of business size.

BLACK for Business is more than just a plan; it represents a significant step forward in our commitment to advancing enterprise telecommunications. By laying the groundwork for future innovations, we are poised to continue transforming the business landscape in Oman. This is just the beginning of our journey. We are dedicated to fulfilling our promise of revolutionizing the industry, driving sustainable growth, and contributing to Oman's vision of becoming a digitally advanced nation.

How is Vodafone leveraging big data and analytics to drive digital transformation and enhance operational efficiency across sectors in Oman? Are there any particular project(s) that you would like to highlight?

At Vodafone, we harness the power of big data and analytics to drive digital transformation and elevate customer experiences across various sectors in Oman. Our focus extends beyond operational efficiency to delivering a whole new level of service through advanced AI capabilities enabled by big data insights.

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We utilize cutting-edge technology to deploy real-time applications and services on a robust cloud architecture. This setup ensures seamless integration and scalability, allowing us to quickly adapt to changing customer needs and enhance service delivery.

Central to our approach is a sophisticated data infrastructure that proactively detects customer issues and provides actionable insights. By analyzing vast amounts of customer data in real-time, we optimize interactions, making them more intuitive and personalized.

Our operational data lake is pivotal in pinpointing technical issues and monitoring network performance, ensuring we maintain high service standards and optimize operational efficiency.

One project that exemplifies our commitment is our proactive customer issue detection system. Powered by advanced analytics, this system identifies potential problems before they impact customers, enabling us to resolve issues swiftly and enhance overall customer satisfaction.

Please outline Vodafone Oman's innovative cybersecurity initiatives. How have they enhanced the company's security posture in the MENA region?

Vodafone Oman has taken significant strides in enhancing its cybersecurity position, setting a benchmark in the MENA region with our innovative initiatives. Our focus is on proactive vulnerability management, advanced automation, and strategic resource allocation to ensure the highest level of security.

A cornerstone of our cybersecurity strategy is our unique Bug Bounty Program, the first and only program of its kind in Oman. This program taps into the skills of over 2,000 ethical hackers globally to identify and mitigate vulnerabilities in our systems. By harnessing this collective expertise, we can address potential security issues before they become threats, thereby continuously strengthening our defenses. Moreover, we have implemented a state-of-the-art, zero-touch Security Operations Center (SOC). This SOC automates many of our security tasks, significantly increasing efficiency and effectiveness. Remarkably, 97% of high-fidelity alerts are now managed automatically, saving over 1,500 hours annually that would otherwise be spent on manual interventions. This automation ensures rapid response to potential threats and frees up our cybersecurity team to focus on strategic initiatives and complex security challenges.

These initiatives reflect Vodafone Oman's commitment to pioneering cybersecurity practices in the region. By proactively managing vulnerabilities and automating security operations, we not only protect our network and data but also enhance the trust and confidence of our customers and partners.

The need to develop 5G use cases, specifically AI and IoT use cases, at-scale is extremely important in the digitalization journey of Oman. How is Vodafone Oman addressing this opportunity in line with Oman's 2040 vision?

Oman Vision 2040 is not just a destination; it is a transformative roadmap aimed at unlocking substantial growth across the country and companies like Vodafone Oman have embodied this vision since birth by enabling digitalization, fostering economic growth, and driving the country towards its goals by 2040. Today, we play a crucial role in advancing the development of 5G use cases, particularly in AI and IoT, thanks to our unique digital-native framework that allows us to implement nextgeneration solutions effectively.

Being born digital gives us a significant advantage in embracing new technologies. We've already integrated AI into our network configurations for optimal performance—a process that would require substantial changes for operators with legacy systems. This foundational strength allows us to remain agile and forward-thinking in our approach. When Oman sought a third telecom operator, the objective was to introduce a game-changer that would fast-track the telecom sector's progress and align with national goals. Vodafone, with its extensive experience in digital transformation and ownership of Europe's largest 5G network, was the ideal choice.

Our global prowess and the limitless potential we can bring to Oman's digital landscape was considered a showstopper at COMEX this year, where we showcased Vodafone's Safer Transport for Europe Platform (STEP) for enhanced transportation safety and efficiency through realtime data sharing. The MYFARMWEB™ platform demonstrated how data insights optimize farm operations for professionalism, profitability, and sustainability. Our Health Broker solution supports assisted care independence and peace of mind. Collaborating with HTC, we featured digital twin technology for interactive virtual representations of physical systems.

Vodafone Oman's proactive approach, which leverages global expertise and local insights, positions us at the forefront of Oman's digital transformation. Our initiatives not only align with but also actively contribute to the realization of Oman Vision 2040, solidifying our role in integrating advanced technologies and enabling Oman to realize its digitally empowered future.

Please provide an outline of Vodafone Oman's expansion roadmap for reaching new target markets in Oman.

At Vodafone Oman, our short-term strategic focus is on expanding our enterprise services to achieve comprehensive business connectivity across Oman within the next three years. Our vision entails building a robust ecosystem that seamlessly integrates mobility solutions, bulk SMS, MBB, cloud services, IoT, and fixed services. In fact, our recent showcases provided a preview of our upcoming innovations, highlighting cutting-edge solutions tailored to key sectors like agriculture, transport, and health.



Related: Innovation Thrives at the Intersection of Vision and Technology

As mobile operators make the transition from a telco to a techco, loyalty and rewards programs play a vital role in accelerating this shift. Sharing his expertise within this field with Telecom Review, Related CEO, Rabih Farhat, highlighted the company's successful projects in the region and elaborated on the importance of redefining a loyalty strategy for telcos. R

elated was awarded the "Best Loyalty and Reward Program in the Telecom Industry" in accordance with

Ooredoo's Nojoom. What makes this loyalty program stand out among the rest?

Over the last couple of years, Related has been in the spotlight of the main loyalty exhibitions both regionally and internationally. And our latest prestigious award from Telecom Review for our client, Ooredoo, is another testament to our innovative approach and execution excellence.

Today, Ooredoo's Nojoom program serves as a best practice benchmark for loyalty and rewards programs in the region and has achieved very high customer engagement rates and an impressive CSAT (the highest across all Ooredoo products). Nojoom's success is driven by 4 main factors:

- Our ability to execute a digital transformation strategy to accelerate redemption on the online marketplace (80% of redemption is shifted to our marketplace).
- Our continuous improvement in our customer experience and interactions on all touchpoints (CSAT level reached a record score of 93%).
- Our offering of vast and appealing rewards and experiences that meet customer lifestyles and preferences (hyper-personalization of rewards with our breakthrough AI tools).
- The strategic partnerships we've built between Ooredoo and anchor/ flagship brands in Kuwait to maximize customer benefits and increase loyalty (more than 300 partnerships across all industries).

How important is it to redefine the loyalty strategy of telcos in today's digital-centric world? How does this aid in revenue generation?

While mobile operators are moving from telcos to techcos, loyalty and rewards programs play a vital role in accelerating this shift by incentivizing stakeholders to adopt new products and technologies, increase customer data points and insights, and create alternative currencies and payment methods.

At Related, we believe that loyalty and rewards programs not only serve as a form of retention but also serve as a revenue generation tool that helps telcos and techcos to create new revenue streams (3% to 5% incremental revenue) outside their core product offerings. This includes:

- Monetizing customer data through strategic partnerships with other brands.
- Creating freemium/ subscriptionbased loyalty programs.
- Gamifying user experiences and incentivizing cross-sell, up-sell purchases.
- Implementing a loyalty points selling structure.

In the Middle East, Related is working with several operators. Do you have any ongoing projects with operators that you'd like highlight?

We are impactfully working with more than 20 clients in the Middle East region alone and we're immensely proud of our achievements with all of them. I'd like to focus on our most recent project, which has been particularly meaningful and challenging for us: 'Eshret Omer' from Asiacell—one of the leading telco operators in Iraq with more than 12 million subscribers. This is the first loyalty and rewards program in the market.

In a market where customers have limited access to e-commerce and payment solutions, we were able to digitally transform the existing program and make it a competitive tool for Asiacell. We have empowered the program with a reward marketplace that provides Asiacell's customers with a palette of rewards, more than 200 online and offline merchants, and a seamless customer experience.

We are proud to say that today this program is the leader in the market and has created sustainable impact on Asiacell's customer loyalty and satisfaction.

In your opinion, how crucial is a customer-driven rewards program to the success of telcos and techcos? How will Related continue to be a helping hand in this journey?

Over the last ten years, Related has been a data-driven company and our main focus has centered around elevating customer experience within the ICT industry, increasing customer lifetime value, creating new revenue streams and boosting customer satisfaction. I've always believed that innovation thrives at the intersection of vision and technology.

Knowing that telco operators are sitting on a bank of data (they haven't been very successful in recent years at monetizing this data or creating new product streams), we have been exploring these banks of data to design and deliver programs that answer customers' needs.

We operate in a region where 65% of the population are below the age of 35, are tech savvy and have a big appetite for adopting the latest innovations.

Our programs are designed in a way to answer their needs:

- We adopt the latest trends to remain relevant to our audience (gamifications, blockchain, NFTs).
- We invest continuously in our Al module and tools to hyperpersonalize rewards program experience and benefits.
- We offer a wide range of exclusive rewards from vouchers and gift cards to goods and memorable experiences.
- We improve customer experience through a trigger-based reward module across the customer journey.

How would you define a successful loyalty rewards program? Do you think more programs similar to Nojoom will thrive in the region?

A successful loyalty program is simply a program that answers the customer's needs, improves their experience and makes them feel as though they belong. Although a big smile on a customer's face or a repetitive purchase is enough to measure customer loyalty, quantifying these metrics is still essential to assess how loyalty initiatives impact a brand.

From our own experience in building brand loyalty, the key metrics to measuring customer satisfaction and loyalty encompass measuring customer enrolment and interactions with the program; measuring customer redemptions, CSAT and NPS; and analyzing customer lifetime value.

While Nojoom has set the bar high in customer loyalty, I believe that many programs in the region will tag along and revamp their program mechanisms and value propositions to maintain customer expectations and needs.



At Related, we believe that loyalty and rewards programs not only serve as a form of retention but also serve as a revenue generation tool that helps telcos and techcos to create new revenue streams



COVERAGE



BNET, Huawei to Scale Fiber Broadband Services in Bahrain

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BNET, the national provider of fiber optic infrastructure in the Kingdom of Bahrain, announced the signing of a Memorandum of Understanding (MoU) with Huawei Bahrain, the leading global provider of information and communications technology.

his strategic partnership, formalized during a visit by BNET's management team to China, signifies a mutual commitment to enhancing broadband experiences for users in Bahrain.

The MoU establishes a collaborative framework aligned with BNET's strategic goals of elevating the national fiber broadband experience. By leveraging Huawei's cuttingedge solutions and technological advancements, BNET aims to deliver unparalleled fiber broadband services to all users across Bahrain. This partnership will significantly enhance coverage for both residences and businesses, positioning Bahrain as a leader in global fiber broadband provision and setting new benchmarks with BNET's robust infrastructure.

A Leading Digital Hub

Ahmed Jaber Alhogbani Aldoseri, CEO of BNET, commented, "This strategic partnership with Huawei represents a significant milestone in our commitment to providing our customers with the best possible fiber broadband experience. We are confident that by combining BNET's extensive network infrastructure with Huawei's cutting-edge technology solutions, we will be able to elevate the nationwide fiber broadband experience in the Kingdom of Bahrain and position the Kingdom as a global leader in this crucial sector."

Meanwhile, Aziz Tang, CEO of Huawei Bahrain, added, "We are delighted to expand our existing partnership with BNET through this important initiative. Huawei is



dedicated to supporting Bahrain's digital transformation journey, and we believe this collaboration will be key in advancing the country's fiber broadband infrastructure and services. We are confident that by working together, we can make a significant contribution to enhancing the digital lives of citizens and businesses across the Kingdom."

BNET remains committed to ensuring Bahrain's telecommunications infrastructure remains at the forefront of global advancements. This, in turn, will empower businesses to thrive, enhance the community's experience, and solidify Bahrain's position as a leading digital hub in the region.

Telecom Review Exclusive Interview: Huawei: Pioneering 5.5G Backhaul with Cutting-Edge Technological Innovation



By leveraging Huawei's cutting-edge solutions and technological advancements, BNET aims to deliver unparalleled fiber broadband services to all users across Bahrain



TELECOM Review



6G: UAE's Roadmap to a More Advanced World

By 2030, 6G technology, also known as IMT-2030, is expected to become the primary mobile technology, offering enhanced user experiences compared to previous generations of networks, according to the Telecommunications and Digital Government Regulatory Authority (TDRA) and Khalifa University's whitepaper.

uilding on the foundations of the successful commercial launch of 5G technology, the United Arab Emirates (UAE) continues to cement itself as a pioneer country in integrating the upcoming generation of networks.

The increasing demand for higher data rates, lower latency, and enhanced connectivity has prompted the UAE to conduct strategic efforts in smart city initiatives and the research and development (R&D) of 6G technology, propelling industries into a more advanced and highly civilized world, capable of making almost anything a reality.

R&D investments emphasize the UAE's aim: to become a hub for cutting-edge research in the region and be at the forefront of 6G's transformational journey.

Next-Generation Technology

6G technology is set to revolutionize the technological landscape and support the fourth industrial revolution by connecting humans, machines, and the environment, paving the way for a decrease in the country's future reliance on oil.

The upcoming generation of networks promises to revolutionize the digital landscape by offering high-speed data rates, significant energy efficiency, and a plethora of groundbreaking applications including immersive communication.

According to Huawei, 6G will utilize a terahertz-wave band, enabling ultra-fast data transmission which is expected to reach 100 times faster than 5G. Artificial intelligence (AI) will also be integrated across all protocols and layers, enabling autonomous operation between various devices and networks.

Furthermore, the new era of wireless networks will elevate the digital era to unprecedented heights by elevating traditional metrics including capacity and throughput, reliability and latency, and scale and flexibility. Innovations in embedded devices, computing fabric, cognitive networks, enhanced network connectivity, and coverage capabilities will also be delivered.

Compared to 5G technology, 6G's sustainability is expected to decrease power reduction by up to 50%. Increased security and privacy will undoubtedly be part of the network's priorities. IMT-2030 will also aid in bridging the digital gap, addressing areas in accessibility and affordability.

With capabilities extending beyond high-speed communications, the world has high expectations of 6G technology. This upcoming generational technology will bring critical advancements in architecture design and coverage. Machine learning (ML) and AI will also significantly benefit from its advent, advancing the development of autonomous systems and smart cities.

The Transition from 5G to 6G and its Applications

Building on existing technologies, groundbreaking breakthroughs including interactive real-time 4D maps, smart contact lenses and haptics, and telepresence experiences are also expected to emerge as a result of 6G.

AR/VR:

A higher level of intelligence will be introduced, transforming communication by enabling real-time holographic interactions, immersive augmented and virtual reality (AR/VR) experiences, and seamless massive connectivity for internet of things (IoT) devices.

For instance, VR training is revolutionizing pediatric care and nursing, enhancing the skills of healthcare professionals through immersive simulations. Research using VR technology is uncovering early signs of Alzheimer's risk, showcasing its potential in medical diagnostics.

Zain KSA and Nokia are collaborating to develop 5G Cloud RAN solutions,

crucial for supporting applications like autonomous vehicles and augmented reality. This partnership is a step towards the advanced infrastructure needed for 6G. Additionally, Ooredoo is exploring 5G-Advanced mmWave technology to transform stadium connectivity, offering fans immersive AR experiences and ultra-highdefinition live broadcasts.

Immersive Experiences:

This huge leap from 5G's high-quality video and 5G-A's fully immersive user experience will blend the digital and physical realms, diminishing the digital-physical divide and transforming lives in ways only imagined before. The data speeds provided by 6G technology will permit holographic communication.

This network evolution will transform teleconferencing, remote working, immersive online gaming, and online shopping, enabling high-resolution live streams and 360-degree video. These will be established by realtime compression and coding, and the reconstruction and visualization schemes brought about by 6G's extremely low latency.

Cloudbrink is advancing highperformance enterprise networking through pSASE, ensuring remote workers have robust connectivity. Nokia has entered the 5G-Advanced era with the world's first immersive voice and audio call, a significant step towards 6G capabilities.

Commenting on the company's global contribution to digital transformation and its recent launch of Data MENA, Abou Mustafa, Head of LE, Government and Key Accounts Segment at du, told Telecom Review that, "We [du] have AAAs for global cloud service providers—Amazon Web Services, Azure Microsoft as well as Alibaba, Oracle Cloud, SAP cloud, Netflix, META, and Akamai for CDN and online gaming— all of them use Data MENA to serve the entire region and globally."

Virtual World:

Furthermore, 6G's ability to blend the digital and physical worlds will

support the metaverse—a fully immersive and virtual world where people can live and interact in 3D, which requires vast amounts of data exchanged between the digital twin.

du, in collaboration with Dubai's RTA, has presented a digital twin as a gateway to the metaverse. This initiative aims to create a virtual replica of the city, enhancing urban planning and citizen engagement through immersive experiences.

Moreover, Ooredoo made history by powering the first-ever 5G-enabled FIFA World Cup™, delivering highspeed connectivity and immersive fan experiences. This event showcased the potential of 5G technology in supporting virtual worlds and augmented reality applications, offering fans unprecedented interactive experiences.

XR/ Edge Computing:

According to Nokia, 6G will also equip networks with the ability to sense by determining the characteristics and movements of things around them. This internet of senses (IoS) will be made possible by integrating human senses such as visual, auditory, tactile, gustatory, and olfactory into the internet of things (IoT), providing immersive physical-like experiences inside the digital world.

Edge computing and intelligence will also be enabled, along with extended reality (XR) which is expected to have a fully immersive 16K resolution, requiring data processing mitigated through cloud-based technologies.

At MWC 2024, John Gao, President of the 5.5G Domain, mentioned that, "XR [extended reality] services can increase Average Revenue Per User [ARPU] for carriers."

UAE's 6G Roadmap

The UAE's targeted launch of 6G by 2030 solidifies its position as one of the leaders in global technological progress. It aims to be at the forefront of research and development (R&D) of 6G, advancing its initiatives to be one of the first countries to adopt the upcoming network technology.

Its transition from 5G to 6G exemplifies its commitment to improving business operations and quality of life, advancing the evolution of industries and smart cities.

To support the advancements in R&D, 6G Centers of Excellence have been established across the UAE, pioneered by du and AWS, facilitating experimentation, testing, and innovation. The significance of building 6G labs for testing in the real world proves its commitment to technological innovation, as highlighted by the TDRA, which will play a pivotal role in regulatory frameworks.

The Path to 6G program was also launched, highlighting the Emirates' plans to advance telecommunications and technology and fill the gaps in the current network.

Furthermore, UAE telecom operator, du, has established a partnership with Huawei for 5.5G and 6G innovations, with plans to launch an International Telecommunications Union (ITU) Focus Group on AI and 6G.

Etisalat by e& is also set to explore 6G-enabling technologies such as Reconfigurable Intelligent Surfaces (RIS) for higher frequency bands.

Furthermore, the government launched the Dubai Metaverse strategy to foster innovation and establish international partnerships for R&D and the metaverse ecosystem. This initiative will focus on technologies including XR/AR/VR/ mixed reality (MR) services, digital twin, real-time data analysis, AI/ML and IoT, and blockchain.

Final Thoughts

The UAE's unwavering commitment to the research and development of 6G cements its position as a global leader in technological innovation. While the research phase is still underway, the arrival of 6G is highly anticipated, igniting excitement in its commercial deployment.

As we transition from 4G to 5G and soon to 6G, technology brings

us closer, at an unprecedented speed, to a more advanced and civilized society. This emphasizes technology's limitless power to transfigure evolution and drive global transformation.

6G promises to introduce new possibilities and deliver a myriad of breakthroughs, transmuting fiction into reality and enabling technologies that are currently beyond reach.

The UAE's proactive and determined approach to welcoming 6G with open arms highlights the country's longterm vision, driven by imagination, and dedication to embrace change through technology. Its pioneering initiatives will underscore the new revolution of communication and interaction of an intelligent ecosystem.



With capabilities extending beyond high-speed communications, the world has high expectations of 6G technology



UAE, KSA Score High in ITU's Development Index 2024



The world is making progress towards universal and meaningful connectivity (UMC)—the ability for everyone to go online under optimal conditions, at an affordable cost, anywhere, at any time according to the 2024 edition of the ITU's ICT Development Index (IDI).

Leading the Middle Eastern market, the United Arab Emirates scored an overall IDI score of 97.5 (96.4 in 2023) with overall scores of 100 in universal connectivity (UC) and 94.9 in meaningful connectivity (MC), while Saudi Arabia achieved 95.7 (94.9 in 2023) with overall scores of 94.7 in UC and 96.8 in MC.

However, a robust performance in IDI does not necessarily mean that UMC has been achieved as performance could be lacking in other dimensions of UMC that are not currently included in the IDI, such as skills, safety and security.

The UAE ICT market was valued at USD 36.13 billion in 2022 and is set to grow at a CAGR of 12.77% to reach a value of USD 65.90 billion by 2027, according to GlobalData.

Meanwhile, the ICT market in Saudi Arabia was revealed as the largest and fastest growing in the MENA region, with an estimated size of 166 billion riyals.

The Middle East ICT market is expected to reach USD 95.05 billion by 2025, growing from USD 84.23 billion in 2020 at a compound annual growth rate (CAGR) of 2.4%. The IT sector in the Middle East is steadily growing as countries increase their budgets. Since 2008, funding has grown five-fold, and in 2019, amounted to USD 207 billion.

IDI Scores Breakdown

The average overall score for the 170 economies covered in the new edition of the IDI was 74.8 out of 100, reflecting an improvement of 3.3% from the 2023

edition. Due to the lag in the submission, processing and validation of data by countries, the IDI assessment completed in 2024 reflects the year 2022. Official data from 2021 was also used as the closest reference for gaps in 2022 data.

According to the assessment, more than half of the economies studied were past the 80-point mark. These results suggest that the world is progressing well towards UMC. However, enormous disparities remain evident: the lowest IDI score was 21.3 out of 100, and 29 economies scored below the 50-point mark.

Low-income economies showed the largest improvement; the group's average IDI score was 36.2, up 13.7% from the previous edition. The largest score increases were mainly driven by gains in internet use, mobile broadband penetration, and affordability. In contrast, high-income economies saw a score increase of only 1.4%, largely due to the fact that their average score was 91.7, leaving little room for improvement. Visit the IDI dashboard to compare all the economies' scores.

TDRA UAE Chairs 53rd Arab ICT Permanent Committee



The city of Dubai, UAE, hosted the 53rd session of the Arab ICT Permanent Committee from July 22-23, 2024.

The UAE-led meeting was represented by H.E. Eng. Mohammed al-Ramsi, the TDRA's Deputy Director-General of the Telecommunications Sector, alongside participating delegates from various Arab states, the Technical Secretariat of the Council of Arab Ministers of Communications and Information (CAMCI-TS), as well as representatives from a number of bodies and organizations with observer status, including the ITU Arab Regional Office. This meeting commenced in conjunction with ongoing preparations for the 54th meeting of the Executive Bureau, set to be held in the UAE on July 24, 2024.

The meeting of the Arab ICT Permanent Committee opened with a speech delivered by H.E. Eng. Mohammed al-Ramsi, in which he thanked the Secretariat General of the Arab League and the Committee's sub-teams for their recommendations that shaped the agenda.

He said, "This meeting comes as a reflection of teamwork that have long characterized the course of joint Arab action in the ICT sector. Concerted joint Arabic efforts have become an urgent necessity today to achieve our common aspirations, including strengthening the digital infrastructure, bridging the digital divide in the Arab world, and bringing about a digitally integrated Arab society. And let us not forget to reiterate the importance of continuing our cooperation with international organizations active in the sector, as this cooperation unlocks prospects for creating a future based on sustainable development and the welfare of our populaces."

The agenda of the 53rd meeting of the Arab ICT Permanent Committee encompasses a range of issues and topics related to joint Arab cooperation in the field of telecommunications. These include the outcomes of the Arab ICT Permanent Committee working groups' meetings, cybersecurity topics, the Arab Digital Capital Initiative 2024, the joint regional Arab content forum with regional groups, organizations and other stakeholders in the Arab digital ICT, the Arab ICT Strategy, as well as the WSIS+20 Review.



Telecom Review's Generative Al Webinar: Industry Leaders Share Insights and Innovations

Telecom Review has successfully hosted its latest webinar session entitled, "Riding the Wave of Generative AI," co-sponsored by Nokia, Umniah, B-Yond, Salam, and Azerconnect Group, covering all aspects of generative AI and providing insight into what's beyond the hype and current real business applications.

iscussing the trends, advancements, best practices, challenges, telecom use cases, and predictions related to Generative AI (GenAI) were Abhay Savargaonkar, Vice President and Head of Technology, Cloud & Network Services, Nokia; Alaa Ibrahim, Chief Technical Officer, Umniah; Rikard Kjellberg, Chief Product Officer, B-Yond; Ayman AlFadhel, VP of Cybersecurity, Salam; and Mushfig Aliyev, Chief Commercial Officer, Azerconnect Group.

Hamza Jadouane, Manager at the Datalab of PMP Strategy, served as the moderator of the session.

Welcoming the audience, Toni Eid, Founder of Telecom Review Group and CEO of Trace Media International, emphasized that this panel was organized to assess the readiness of mobile operators and vendors, as well as their objectives in deploying GenAI.

The State of Generative AI: Current Trends and Advancements

When asked about his perspective on why there is suddenly so much hype around generative AI, Savargaonkar cited a creative example wherein different ingredients to make a custard are on the table. Past AI models will be trained to automatically create a custard, but with generative AI, five different recipes could emerge using the same ingredients.

This showcases the "fundamental difference" between previous AI and generative AI, which focuses on generating new content.

Acknowledging a notable trend, the Nokia executive mentioned that NVIDIA's share prices increased by 150% in the first half of 2024. There has also been a "reality check, as everybody now knows what generative AI, or AI in general, can do, and what it can and cannot be used for."

Highlighting Nokia's breakthrough innovations, Savargaonkar articulated that their operations revolve around productivity enhancement, which is an aspect they have bifurcated on. For example, the Nokia Cybersecurity Dome is an overarching solution for threat identification, detection, and verification. Using AI, Nokia has replaced the expert security monitoring team needed to monitor, run, and handle any security products.

In the realm of telecom network complexity, Nokia has utilized the concept of creating a digital twin, incorporating AI to handle software upgrades, threat prediction analysis, and other real-life network tests digitally. Moreover, Nokia's digital system has become intent-based to eliminate complexities in overall product scenarios.

On the productivity side, Nokia has curated its large database through LLM processing and extracted useful information, making quicker network diagnostics of similar level 3 problems.

Ibrahim concurred that predictive maintenance has been very useful to Umniah. "Self-optimizing networks (SONs) are already part of the 5G standard but when you enable AI on top of a SON, you get predictive capabilities," he continued. This not only provides root-cause analysis, but also forecasts what can happen due to the evolution of the traffic and provide more concise recommendations to proactively catch a problem before it happens. He mentioned that greater traffic mobility has been observed as a result.

For the past year, Umniah's CTO has observed a very good progress as "AI models are becoming more efficient, and that's very good news for us, because that reduces the computational power needed to run these models." This is a positive sign that "we can continue to depend on AI to do what we are looking for." Highlighting commercialization, Umniah's CTO thinks that generative AI is "playing a big role in the personalization of services," bringing entities closer to customers, understanding their needs, and tailoring services to meet their requirements. He also believes that AI hardware is becoming more resilient.

Using LLMs, chatbots are also becoming more capable when dealing with customer needs. Umniah is capitalizing on this intelligence in its operations.

Salam's VP verbalized how AI will be helpful in monetizing services, reducing costs, and enhancing customer experience. Notably, AI can reduce the number of people in call centers, and can even suggest more services and products by understanding and tracking the historical data of a customer.

From a technologist's perspective, B-Yond's CPO sees a "technology stack emerging." These include LLM technologies, retrieval augmentation, knowledge graphs, and large-action models. He mentioned that B-Yond is entering the space of large-action models with automated remediation.

B-Yond's core product is a 4G and 5G network diagnostic solution, Kjellberg emphasized, "We use generative AI in combination with other AI and ML techniques to create a whole chain of actions, which create useful functionalities."

Some of the scenarios he mentioned include AI-based image recognition technology to conduct real-time pass/ fail tests of network traffic at-scale as well as symbolic ML models to conduct deep-root cause diagnostics of failures. The diagnotics results are combined with generative AI (LLMs) and other information sources, including their own proprietary tribal knowledge and 3GPP documentation, to provide a more readable result to users.

From a technological front, the existence of small language models (SLMs) amidst large language models (LLMs) has also been observed. Kjellberg noted that this facilitates AI at the edge, making it suitable for telco networks and mobile devices. B-Yond has created SLMs that are as small as 10 GB that can reside on the device itself.

Additionally, Mushfig Aliyev, Chief Commercial Officer, Azerconnect Group, stated the recent trend of applications becoming available in local languages, which are mostly free. In the rebranding of one of the telco players that Azerconnect Group manages, they have utilized generative AI for content generation. He also took the opportunity to highlight the convergence of GenAI and personalized marketing, emphasizing that telcos stand to gain from hyperpersonalized localization.

Multi-modal AI models are also among the trends mentioned which involves combining images, audio, and other elements together.

Solutions and Best Practices for Implementing GenAI

Regarding the key considerations and challenges businesses must consider when looking to implement generative AI and the best practices that should be followed to ensure successful GenAI deployment, Rikard Kjellberg, Chief Product Officer (CPO), B-Yond, noted that this is a really interesting space. In working with many of the largest telcos in the world, a crucial question is often encountered: should they go into it alone, or should experts in the field be partnered with?

When the decision is made by telcos to go into GenAl implementation alone, it must be understood that merely having all the data is not enough. A well-integrated team of domain experts, including those who understand the telco domain, data scientists, and expert developers, are needed, all of whom must share a common understanding and work cohesively.

Having the data is just the beginning; it is crucial for the data to be automatically curated into high-quality datasets that can be effectively utilized. Employing various machine learning and AI tools, including generative AI, in iterative fashions is vital. This represents a new way of working for many telcos and requires a robust infrastructure strategy.

As per Mushfig Aliyev, Chief Commercial Officer, Azerconnect Group, the execution of the roadmap often presents significant challenges, particularly in terms of planning milestones accordingly and executing them in a timely manner. Unlike software development, AI planning cannot be exact and precise on a dayto-day basis. In AI initiatives, planning often shifts due to the nature of the work, which demands continuous machine learning and adaptation.

According to Ayman AlFadhel, VP of Cybersecurity, Salam, a clear strategy and objective should be established for using Al. The reasons for adopting Al and the areas where it will be applied must be clearly understood. A specific department should be created to manage the large volumes of data that Al will generate and use. The tools and expertise necessary to handle and analyze the data effectively must be provided to this department.

AlFadhel mentioned that data protection is another crucial point. The risks of data leakage posed by Al should be mitigated by using proper consideration and control over data classification. For instance, sensitive or classified data should not be inputted into Al systems like ChatGPT, as the information might be used to answer queries from other users.

Lastly, AlFadhel reiterated that investment in training is essential. The benefits of AI and related tools can only be maximized if employees are welltrained. This is a new field, and without proper training, the full potential of AI technology cannot be realized.

Alaa Ibrahim, Chief Technical Officer (CTO), Umniah noted, "One point from my side, based on practical implementation, is the significant challenge of implementing the closed-loop concept, where AI is trusted to handle the full loop until the implementation stage. This challenge highlights the importance of explainable AI."

Regulatory Compliance

Concerning the steps that companies should take to ensure compliance with Al-related regulations and how should businesses address transparency and accountability in generative Al, in Ibrahim's opinion the need for a dedicated regulatory team for Al compliance is critical.

The establishment of a dedicated team for AI compliance is crucial for progress in AI initiatives while adhering to regulatory requirements and safeguarding data integrity.

Expanding on the regulatory realm, AlFadhel explained that AI revolves around data and its criticality extends to cybersecurity. Therefore, data protection through effective data governance is essential. When considering data governance, AIFadhel highlighted four key domains to focus on: data assessment, data utilization, data classification and availability, and data protection.

Azerconnect Group's Aliyev noted that there have not been any new regulations regarding Al compliance. However, he emphasized that businesses should remain vigilant about customer data privacy and use it as a guiding principle in their operations and implementations. He also highlighted the importance of ethical considerations in Al deployment. Aliyev suggested that implementing use case team analysis can aid in shaping future strategies, ensuring that ethical and privacy standards are upheld while leveraging Al's potential.

GenAI and Telecom Use Cases

Sharing B-Yond's GenAl use cases, Kjellberg said the technology is being utilized to enhance customer support operations by reducing support staff in handling call volumes. B-Yond has used chatbots to increase customer interaction and has implemented automated voice interaction in sales and marketing.

In B-Yond's operation and network management sector, he said GenAI is being used for diagnostic purposes, real-time monitoring, and analyzing SLAs. "We're working with the telcos right now all over the world for continuous sampling and diagnostics to monitor VIP customers or specific enterprises." He highlighted that B-Yond is utilizing an operational triage model in its cyber incident response to investigate network alerts. "Reducing mean time to resolve and restore service is another area that there's a lot of activity and work going on," he noted.

He also mentioned that B-Yond is leveraging GenAl in anomaly detection, automation and closed-loop operations. Importantly, he stressed the need to educate staff about the risks of using GenAl.

The moderator of the session, Hamza Jadouane, Manager at the Datalab of PMP Strategy, interjected, affirming that action models are at the forefront of GenAI implementation.

Ibrahim highlighted that Umniah has three successful GenAI use cases for network optimization and management. Firstly, Umniah has deployed a cognitive AI traffic tool that forecasts network traffic and diagnoses network issues. Secondly, Umniah's GenAIenabled power control has introduced a smart deep-sleep cycle, resulting in a 10-30% power saving. Thirdly, Umniah has implemented an abnormal network behaviour identifier, which enhances root-cause analysis, improves latency, and increases network throughput. Ibrahim emphasized the importance of proactively detecting and understanding the root causes of network issues to take appropriate measures for resolution.

To enhance customer experience, AlFadhel emphasized that Generative AI (GenAI) is ideal for network optimization, which could eventually lead to a better customer experience. He also highlighted the integration of all-bandwidth analytics and noted the importance of feedback analysis, bolstered by GenAI capabilities. Additionally, AlFadhel mentioned that GenAI can be utilized in marketing for scalability and competitor research, showcasing its versatile applications in enhancing both operational efficiency and strategic planning.

Highlighting the impact of GenAl on telecom revenue and operational efficiency, Aliyev reiterated that a 20% reduction in customer care and marketing staff could be achieved. He also noted that knowledgesharing of GenAI insights with staff could help overall customer interaction operations. He noted that the new trends in marketing and communication, driven by Generative AI (GenAI), can provide personalized services, resulting in a 5% revenue increase. He also mentioned that 20% of his company's sales volume was derived from AI-backed telesales.

Commenting on identifying and mitigating cybersecurity threats, AlFadhel said that GenAl can be used for threat detection, predictive maintenance and can analyze networks, providing mitigation solutions. He also stressed the importance of cybersecurity personnel matching the expertise of hackers who use GenAl for sophisticated attacks on networks. "We should protect ourselves by using the same technology [GenAl] used by the attackers and enhance our way of protecting the organization."

Predictions for the Future of GenAl

Predicting the most exciting future trends in GenAI, influencing industries and business models, Kjellberg said the speed of GenAI applicability will grow exponentially. He pointed out that the human-to-machine interaction will have a tremendous impact on businesses. He also noted the proliferation of multi-modal LLMs, GPU architecture, powerful AI-enabled APIs and memory architectures.

He also emphasized the importance of innovation in data centers and the recent capabilities of hydropower in data center operational enhancement. From a telecom perspective, he highlighted the compatibility and interoperability of GenAI applications and SDN architecture, including network slicing, purpose-built networks, softwaredefined 5G networks and intent-based solutions.

Aliyev foresees a tremendous growth in content generation applications while AlFadhel pointed out that the combination of ubiquitous Al, quantum computing and machine to human interaction capabilities would have farreaching consequences.

How the World Wide Web is Fueling Today's Digital Lifestyle and Connectivity

The World Wide Web, introduced in August 1, 1991 has fundamentally changed how information is shared and accessed globally.

TELECOM Review

orld Wide Web Day, celebrated on August 1 each year, marks the anniversary

of the public release of the World Wide Web (WWW). It honors the innovation that revolutionized communication, information sharing, and commerce worldwide.

In 2023, the number of internet users worldwide stood at 5.3 billion, meaning that around two thirds of the global population is currently connected to the WWW.

It is worth acknowledging how the web has integrated into our daily lives, influencing how people interact, entertain, work, and even think. Similarly, telcos are evolving to adapt to the high demand from increased WWW usage, underpinning many facets of contemporary digital lifestyle and culture.

The Dawn of a New Digital Lifestyle

The late 1990s and early 2000s saw an explosion of content and interactivity as websites evolved from static pages to dynamic platforms, transforming how people communicated and entertained themselves.

Email has replaced traditional mail for quick exchanges, forums have emerged as communities for like-minded individuals, and search engines have served as guides through this vast digital wilderness.

In the early 2000s, the web's interactivity brought social media to life, providing platforms that allowed individuals to share their lives, thoughts, and creativity with the world.

MySpace, later rebranded as Facebook, became a digital hangout haven, transforming social interactions into a blend of online and offline experiences.

In this way, the web didn't just change how we connected; it began to shape our identities and cultures.

As the web matured, it also revolutionized commerce. Online marketplaces

redefined shopping, making it possible to buy anything, from anywhere, while businesses both big and small tapped into the power of digital marketing, reaching global audiences with a few clicks.

Having said that, the rise of e-commerce spawned a new era of consumer culture, where convenience and choice became king.

The web is now the foundation of our digital lifestyle, enabling work, entertainment, learning, and social engagement. From streaming services that bring cinematic experiences to our living rooms to virtual reality worlds that blend the digital and physical, the web continues to expand its horizons.

Influencing Online Content and Communities

The telecom industry has acted as a cornerstone over the years in enabling and expanding the influence of online content and communities.

Telecom networks connect rural and urban areas, bridging digital divides and allowing people in remote locations to participate and immerse themselves within the digital culture. Initiatives to expand internet access globally have enabled more individuals to be part of online communities.

The deployment of high-speed broadband and advanced wireless networks (such as 4G and 5G) has facilitated seamless access and provided the necessary bandwidth and low latency required for online content and communities to enjoy web-based activities.

In the Middle East and Africa region, all telecom players have been actively deploying the latest wireless network technologies for the benefit of businesses and users alike.

Essentially, telecom companies often collaborate with cloud service providers (CSPs) to offer cloud computing solutions. This infrastructure supports the storage, processing, and distribution of online content, enabling platforms to scale and innovate. Latest examples of these are Omantel's strategic partnership with two hyperscalers: Amazon Web Services (AWS) and Google Cloud, as well as the launching of Huawei's first locally-based public cloud platform, in partnership with Telecom Egypt, to position Egypt as a premium regional digital hub.

Moreover, by embracing and driving digital transformation, telcos play a critical role in advancing technologies such as the Internet of Things (IoT), augmented reality (AR), and virtual reality (VR), to further enrich online content and experiences.

Targeting the Saudi market, Quickplay has partnered with stc to launch "Bits," a short-form video platform tailored to the dynamic Saudi audience, mirroring the popularity of apps like TikTok in the region.



The web is now the foundation of our digital lifestyle, enabling work, entertainment, learning, and social engagement



How the Digital Lifestyle Drives Increased Web Traffic

The rise in the digital lifestyle phenomenon, characterized by the pervasive use of internet-connected devices for communication, entertainment, work, and social interaction, has significantly increased web traffic.

This surge in web traffic requires telcos to enhance their network capacity to manage the increased data load. This involves upgrading existing infrastructure, expanding bandwidth, and investing in advanced technologies like 5G and fiber optics.

To maintain service quality amidst rising web traffic, telcos must optimize network performance. This includes implementing advanced traffic management solutions and enhancing network resilience to prevent congestion and ensure reliable connectivity.

Vodafone Qatar has implemented network optimization techniques to manage traffic spikes effectively and maintain high-quality services for users engaging in activities such as streaming and video conferencing.

Increased web traffic can also lead to higher demand for customer support services as users encounter connectivity issues or require assistance with digital services. Hence, telcos need to enhance their customer support capabilities, including investing in automated support systems and Aldriven chatbots.

Ooredoo Qatar has consistently enhanced its customer support infrastructure, incorporating AI-driven solutions to handle increased inquiries related to connectivity and digital services.

Telcos: Enabling Digital Lifestyles

Aiming to be more than just a reliable network provider for customers, modern telcos' major goal is to enable digital lifestyles. To achieve this, they need to constantly keep up and stay ahead of customers' wants and needs.

A testimony to this is du's brandbuilding journey which included its evolution from a telecommunications provider to a digital lifestyle brand. According to du CEO, Fahad Al Hassawi, the company recognizes the increasing interconnectedness of the world we live in. This is the reason why du has positioned itself as a brand that enables lifestyles.

This is evident in du's wide range of services, from home wireless, to TV packages, to smart services such as the du Smart Car and the Smart Devices SIM.

To be a successful digital lifestyle enabler, users' web behaviors must be analyzed, including their preferred channels, consumed content, their interests, the amount of time spent on devices, as well as their demographic information.

For example, if a customer is consuming a lot of mobile data by streaming on the web or shopping online, telcos could curate a personalized data bundle to better serve that customer.

Moving forward, operators will become more relevant by delivering smarter connectivity, powered by 5G, 5G-Advanced, and even 6G later on. This will start in the home, on devices, and expand beyond connectity into solutions that help users manage their digital lifestyle needs.

An example of this model in action is e&'s footprint, which spans 32 countries, including STARZPLAY and the Careem Everything app across the Middle East, Asia, and Africa.

Bearing this in mind, operaratos are indeed set to redefine themselves as a digital lifestyle provider, offering platforms where ecosystem partners can integrate their apps and deliver 5G-based services across various industries.

stc Group is a leading telecom and digital service provider driving global digital transformation with a focus on infrastructure, cloud computing, cybersecurity, IoT, digital payments, and entertainment.

Additionally, embracing a platform-based business model will improve telecom

operator's relevance in today's fastchanging digital economy, and this will pave the way for the monetization of services.

In line with this, Nokia is helping customers become a digital lifestyle partner. With a solution built around its cloud-native Nokia Converged Charging (NCC) system, Nokia is providing a nimble, focused business stack that is optimized for the digital brands of today.

Closing Note

The telecom industry empowers the web ecosystem, providing the infrastructure, data services, and innovation necessary to support and expand the modern digital lifestyle globally. This industry builds and maintains the networks that facilitate seamless internet connectivity, enabling billions of devices to communicate and share data with borderless possibilitie.



The telecom industry empowers the web ecosystem, providing the infrastructure, data services, and innovation necessary to support and expand the modern digital lifestyle globally



TELECOM Review



The Telecommunication Sector's Role in the 'Economy of Things'

As the worldwide telecom sector fights a competitive market amidst frequent geopolitical and economic upheavals, operators have few choices but to make the most out of the rapidly transforming ICT market.

he integration of 5G rollouts and the subsequent utilization of the Internet of Things (IoT) has revolutionized the way in which we connect and interact with the world around us. As the demand for faster, more reliable and ubiquitous connectivity grows, the convergence of these cutting-edge technologies is paving the way for a truly connected future.

Moreover, machine to machine (M2M) and IoT-embedded "smart objects" are becoming increasingly capable of responding to their environment, regardless of the complexities. This sense-andcontrol system can optimize valuable natural, financial, and human resources, reducing waste in various areas such as agriculture, inventory management, and manufacturing. In every case, it enhances productivity and quality.

Similarly, residential home-grid applications are another area where IoT/M2M is expected to make substantial contributions, combining applications from multimedia entertainment to energy sectors. In addition, there is no doubt that the strong influence of digital transformation catalysts such as generative AI (GenAI), large language models (LLMs), machine learning (ML), cloud and software applications are constantly challenging the telco landscape. However, the communication infrastructure provided by the operators remains vital for the proliferation of such technologies and ultimately for economic growth.

Digital Fuels

While the 5th generation of wireless technology promises higher speed and lower latency with its ability to handle massive amounts of data in real-time, IoT is utilizing the vast network of interconnected devices, sensors and objects to communicate and exchange data with each other, giving way to the Economy of Things (EoT), which presents a new environment to share data across ecosystems, unlocking new monetization opportunities.

EoT signals the move beyond context-aware connected IoT devices to one where IoT devices have themselves become digital assets, capable of real-time discoverability, indexing and autonomous transactions. For example, a vehicle equipped with an EoT-secure identity and wallet can pay for its fuel at an EoT-enabled fuel pump automatically, without the need for human intervention.

The potential for growth and innovation in EoT can be attributed to the following three factors:

- An ecosystem of hyper-connected, collective, value-based devices that can solve complex persona-based challenges and drive the next reinvention of the industry.
- A new value chain of common, interoperable infrastructure and service platforms that facilitate services and data exchange solutions.
- Incentivizing data owners to share data while maintaining privacy, driving collective value for all participants.

Smart Possibilities

The range of potential EoT applications is rapidly expanding. For example, tech-advanced cities like Japan and Korea are utilizing smart billboards capable of stealthily analyzing the shopping habits of passers-by to showcase relevant display messages. In other instances, smart farming can analyze parts of a field under cultivation and adjust fertilizer spread according to prevailing conditions. Similarly, manufacturers can make on-the-fly changes to product details by making their production lines and products smarter with smart sensors and actuators.

Moreover, consulting company, McKinsey, has previously highlighted two broad categories of EoT application: information and analysis, and automation and control. Within these categories, the company has identified six broad applications:

- 1.Behavior tracking to understand how people use products
- 2. Enhanced awareness for monitoring environmental and other events
- 3. Decision analytics in resource exploration
- 4. Process optimization
- 5.Resource consumption control with smart metering
- 6.Complex autonomous systems that enable vehicles to have 'autopilot' capabilities.

Enabling and Fostering EoT

Telcos play a central role in spearheading the transition from IoT to EoT as both technology enablers and facilitators of ecosystems and collective value creation.

The widespread adoption of EoT necessitates a quantum-secure IoT network encompassing sensors, edge devices, core systems, or cloud infrastructure based on the zerotrust principle of "never trust, always verify." Telcos can extend secure enterprise data and AI capabilities to the network edge, facilitating real-time discovery, utilization, and monetization of compliant EoT data and use cases.

Telcos can act as data providers as well as data marketplace and brokerage operators within the ecosystem. Telcos currently operate vertical data platforms tailored to specific industries like automotive, agriculture, or financial services. By integrating EoT platforms with these vertical data platforms, telcos can efficiently unlock industry-specific EoT use cases, creating new revenue streams that complement their core offerings.

Moreover, telcos play an important role in establishing viable EoT ecosystems to serve the enterprise and IoT customer and consumer segments. Mobile devices have become a key component in EoT as digital extensions of consumers and users. Consumer ownership and control over their identity and personal data are crucial factors that enhance and enable the value of the EoT ecosystem. This empowerment facilitates the implementation of innovative business models such as B2B2C and B2C2B, where businesses interact directly with consumers and facilitate partnerships between businesses.

Telco-EoT Convergence in Action

Telcos are increasingly leveraging their technological capabilities to drive the transformation towards an Economy of Things (EoT), where interconnected devices, data, and services create new value ecosystems across various sectors.

Ericsson, for instance, is at the forefront of this technological evolution and is collaborating with various partners to test high-speed internet connectivity on trains over a 10-kilometer rail track. This initiative aims to enhance passenger experience and operational efficiency through seamless connectivity, laying the groundwork for advanced EoT applications in transportation. Similarly, in the transportation sector, du launched du Smart Car, which utilizes data-heavy subsets, integrations and analysis, to create a seamless, intelligent driving experience.

In the agricultural sector, du and Gracia Group have launched a pioneering agritech platform, marking a significant step towards modernizing the sector. This platform integrates IoT solutions to optimize farming processes, improve crop yield, and ensure sustainable agricultural practices, paving the way for EoT convergence.

Meanwhile, Dubai's Ministry of Finance has successfully implemented Robotic Process Automation (RPA) across its operations, automating 1.8 million transactions with an impressive 98 percent accuracy. This deployment underscores the transformative power of EoT and automation in streamlining administrative tasks and enhancing operational efficiency.

In the realm of fintech, Ooredoo has introduced 'walletii', a cutting-

edge financial solution in Oman. This platform integrates mobile payments, digital wallets, and secure transaction capabilities, catering to the evolving needs of consumers and businesses alike while utilizing EoT capabilities as a backbone.

In the healthcare sector, various EoTbased models are in development, du is providing strategic cloud support to the Dubai Health Authority (DHA), enabling secure storage and efficient management of sensitive medical data. Similarly, the Kuwait Ministry of Health has embraced AI for diagnosis and treatment, leveraging advanced analytics to improve medical outcomes and patient care. Moreover. Etisalat has launched its Business Edge Healthcare platform, offering a range of services designed to empower hospitals and medical practitioners with secure and seamless communication tools. In tandem, Etisalat Digital has introduced the Cloud Electronic Medical Record, a groundbreaking solution that facilitates real-time data sharing among healthcare facilities in the UAE.

Addressing cybersecurity challenges using an EoT philosophy, CrowdStrike has collaborated with telecom sectors in the Middle East to implement an identity-centric, zerotrust architecture. Furthermore, Cloudbrink is delivering highperformance enterprise networking through pSASE (Secure Access Service Edge) capabilities, providing businesses with integrated security and networking.

Final Thoughts

The UAE is evolving into a truly global digital hub that is attracting the world's wealthiest investors in diverse sectors. The seamless operations of EoT functions will warrant the most innovative marketready solutions, implemented by telecom operators, to match the pace of global trade for companies to produce economies of scale.

ICT stakeholders should prioritize advancing the EoT vision through appropriate regulatory policies, fostering talent development, and adopting effective investment models. Telecom operators must recognize that their potential extends beyond traditional SIM card sales, offering opportunities for diversified business growth.

Market studies forecast that the EoT market will reach an inflection point within the next few years with over 10% of IoT devices being EoT-enabled by 2030. Telcos need to understand that they are the entities transforming sectors such as finance, education, health, manufacturing, oil and gas, and so on. The industry's resilience and innovative approach will determine the future course of economic growth.

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Telcos play a central role in spearheading the transition from IoT to EoT as both technology enablers and facilitators of ecosystems and collective value creation



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du Records 54.2% Net Profit Rise in H1 2024, Eyes Long-Term Growth



Emirates Integrated

Telecommunications Company P.J.S.C, commercially rebranded as du, has reported a 54.2% net profit spike in the first half of 2024 (H1 2024), bringing its total net profit to AED 1.184 billion, compared to AED 768 in H1 2023. Meanwhile, the company's revenue grew 5.7%, reaching AED 7.174 billion, compared to AED 6.787 billion in H1 2023.

The company's Q2 2024 net profit reached AED 581 million, reflecting a 46.3% increase year-over-year (YoY). Q2 revenues increased by 7.3% to AED 3.592 billion, buoyed by strong product offerings. Top line growth was evident with an EBITDA increase of 3.2% to AED 1.570 billion. CapEx decreased by 12.3% YoY, while operating Free Cash Flow (FCF) was AED 1.127 billion, reflecting a 10.9% increase year-over-year.

On the basis of these results, the Board of Directors approved the distribution of an interim cash dividend of AED 0.20 per share, resulting in a 53.8 % increase YoY.

Operating Highlights

du's mobile customer base grew 2.9% YoY to 8.2 million subscribers, while tapering over the quarter, reflecting the typical seasonality impact. Postpaid customer base grew by 11.3% YoY to 1.7 million subscribers, attributable to innovative enterprise connectivity solutions and the continued success of consumer product launches such as the "du Smart Car". Prepaid customer base grew by 0.9% to 6.5 million customers with voice and data growth offset by a normalization of the tourist influx.

Fixed customer base rose by a strong 12.7% YoY to 630,000 subscribers, with net-additions of 15,000 subscribers over the quarter. Home wireless plans continue to be the main growth driver, boosted by new offerings such as the launch of home wireless gaming, while enterprise connectivity also performed strongly during the quarter.

Commenting on the results, Malek Al Malek, Chairman of TECOM Group and Group CEO of Dubai Holding Asset Management, said, "The first half of 2024 saw EITC deliver another record set of results. The management remained focused on strategy execution, delivering profitable growth in our core business and beyond and creating value to our shareholders. The company remained at the forefront of technological innovation to offer the best experience to our customers in areas including fintech and Al."

Meanwhile, Fahad Al Hassawi, du CEO, said, "Going forward we will remain focused on executing our strategy and are committed to investing in our future, enhancing 5G coverage and continuing to transform our IT and network infrastructure, thus, building a solid foundation for long-term growth and creating value for our shareholders."

Vodafone Qatar Reports 12.8% Increase in H1 2024



With 2023 being an exceptional year, Vodafone Qatar reported its halfyearly net profit of QAR 293 million, representing an increase of 12.8% year-on-year, mainly driven by higher EBITDA. The company's Q1 results have previously shown positive improvements across all key indicators.

Total revenue increased by 2.2% yearon-year, reaching QAR 1.59 billion, driven by a 2.8% growth in service revenue, which reached QAR 1.41 billion. This increase is attributed to the continued growth in the telco's fixed broadband services (GigaHome), mobility, wholesale, and Internet of Things (IoT).

The telco's EBITDA for the period also increased by 5.9% year-on-year to QAR 672 million, primarily driven by higher service revenue and the ongoing success of the company's cost optimization program. This led to a 1.5 percentage point increase in the EBITDA margin, reaching 42.4%, as well as a net profit margin increase of 1.7 percentage points year-on-year to 18.5%.

Additionally, Vodafone Qatar achieved an annualized return on capital

employed (ROCE) of 11.3% in H1 2024, reflecting the successful allocation of capital to both existing and new areas, which diversified revenue and accelerated profitable growth.

Notably, during the first half of the year, the telco demonstrated peak speeds exceeding 10 Gbps through 5.5G high band network testing. This landmark trial highlights Vodafone Qatar's commitment to innovation, demonstrating unprecedented data speeds and solidifying its position at the forefront of technological advancement.

At present, Vodafone Qatar is serving 2.1 million mobile customers.

Zain KSA's H1 2024 Results: SAR 5 Billion Revenue, 60% Net Profit Growth



Zain KSA has announced its financial results for the first half of 2024, recording revenues of SAR 5 billion, a 6% increase compared to the same period in 2023. The company also reported a net profit of SAR 172 million, compared to SAR 108 million, a 60% growth over the same period in 2023, excluding the tower infrastructure sale transaction worth SAR 1.1 billion.

Commenting on these results, Eng. Sultan bin Abdulaziz Al-Deghaither, CEO of Zain KSA, said, "At Zain KSA, we continue to enhance the digital capabilities for our individual and enterprise customers to drive nationwide digital transformation. This growth is a result of our strategic directions over the past years, which focused on empowering a seamless customer-centric digital experience." These results underscore Zain KSA's strategic focus grounded in enhancing customer experience and expanding next-gen technologies. This has led to revenue growth in the B2B sector and increased demand for services during the 1445 AH Hajj season. Notably, Zain KSA provided full 5G coverage to the holy sites, contributing to the Pilgrim Experience Program by offering advanced infrastructure that enhances digital experiences for pilgrims. This was paired with sustained demand for the digital service, Yaqoot.

Contributing Investments and Actions

Likewise, Zain KSA's business and return on investments (ROI) in adjacent markets continued to grow, particularly in the fintech sector through Tamam.

The CEO also mentioned Zain KSA's expansion plan with investments amounting to SAR 1.6 billion that will increase 5G network coverage from 66 to 122 cities. Through these investments, the telco also aims to support Industry 4.0 by allocating 45% of the 5G infrastructure to support advanced 5G technologies.

"As we continue to grow on the level of operations and financial performance, we reaffirm our commitment to supporting our astute leadership's efforts, particularly in enhancing the growth of local content in the ICT sector," continued Al-Deghaither.

During H1 2024, Zain KSA introduced the first fleet management system as a 100% national product. This supports Saudi Vision 2030's economic goals of diversifying national revenue sources and supporting Saudi products to the highest standards of reliability and excellence.

Parallel to this business growth, Zain KSA is committed to operating responsibly and in full compliance with the best global sustainability practices. With extensive experience in sustainability, the company aims to transfer and share this knowledge to enhance the capabilities of SMEs in the ICT sector.

Ooredoo Oman Trains 200 Omani Women with Award-Winning Springboard Program



Ooredoo Oman's 23rd Springboard program has successfully trained over 200 Omani women, strengthening and empowering them to leverage their talent and skills to achieve their aspirations and become future business owners.

Providing training opportunities across the country, Springboard was created by women, for women, and promotes the inclusion of Omani women in the workplace. This year, Springboard welcomed participants from various government and private institutions as part of a collaborative effort with various Omani women's associations in South Al Batinah, Wilayats of Nakhal and Al Awabi.

Springboard is seen as a benchmark for successful public-private sector collaboration. As part of this initiative, an agreement was established to launch a program—Otaxi—to empower female taxi drivers. Additionally, Ooredoo partnered with OMRAN, a leading entity in the tourism and hospitality sector, to empower a group of its female employees.

This partnership aims to provide these women with the necessary skills and knowledge to excel in their roles and contribute to the company's growth. The training program, which will continue over a period of 3 to 4 months, includes a series of workshops and practical sessions.

By building skills and providing the right tools, the course helps to propel women into the world of work, including entrepreneurship. In doing so, this helps them contribute to the development of the national economy while creating a positive and sustainable impact on future generations.

Focused on giving back to local communities, Ooredoo's Springboard program falls under the company's Corporate Social Responsibility (CSR) Goodwill umbrella. Notably, since the inception of this educational program, Ooredoo has provided professional development opportunities to over 8,000 Omani women.

stc Group's H1 2024 Financial Highlights and Strategic Advances



stc Group has reported strong financial results for the first half of 2024. Commenting on the results, Eng. Olayan bin Mohammed Alwetaid, stc Group's CEO, commended the efforts made by the Group through its various sectors and subsidiaries in strengthening the Group's position in a competitive market, which were achieved due to the Group's commitment to its "Dare 2.0" strategy.

The telco revenue rose to SAR 38,255 million, up 4.79% from the first half of 2023. This growth was driven by a 0.6% increase in stc Saudi revenues, led by a 6.0% rise in commercial unit revenue and a 0.2% increase in carriers and

wholesale unit revenue. Subsidiaries' revenues also grew by 13.4%.

The net profit for the period was SAR 6,590 million, marking a 7.73% increase from the same period last year, while gross profit reached SAR 18,957 million, up 3.88% year-over-year.

The Group CEO also praised the kingdom's commitment to providing the best services and facilities for pilgrims and improving their experience during the Hajj season. Notably, stc provided high-speed internet access to 1.8 million stc Group network users who visited the holy sites. This resulted in a 65% increase in voice call volume compared to the previous Hajj season and ensured world-class connectivity for millions of pilgrims.

In tandem with this achievement, stc is expanding its 5G network and adopting new technologies such as 5G-Advanced, RedCap, and passive IoT to provide cutting-edge telecommunications services and usher in a new era of connectivity, security, and efficiency.

The Group CEO added that stc Group remains dedicated to supporting the digitization of operational processes and enhancing the application of modern technologies across several strategic projects of the kingdom's Vision 2030. This is being achieved through partnerships with the General Authority of Ports, the Saudi Global Ports Company, and the Red Sea Gateway Terminal, amongst others.

Moreover, stc Group, via its carriers and wholesale unit, provides various digital services and solutions for the transportation and ports sector and others, contributing to improving performance, operations, economic competitiveness and cost reduction. The Group's initiatives also focus on increasing safety levels for workers.

Umniah Reduces Environmental Footprint with Ericsson's AI/ ML Solutions



Ericsson will deploy its cuttingedge artificial intelligence and machine learning (AI/ML) solutions to significantly reduce energy consumption across Umniah's network operations in Jordan. This marks a significant advancement in the telecom industry's efforts towards environmental sustainability.

The deployment comes after a successful proof-of-concept (PoC) where Ericsson's Intelligent RAN Power Saving solution demonstrated an estimated 20% reduction in 5G daily power saving capabilities.

AI-Enhanced Power-Saving Technology

Ericsson's solution leverages a machine learning prediction model that continuously analyzes real-time network data. Through intelligent decisionmaking capabilities, it determines whether to deactivate, activate, or maintain network components based on the data and activity in neighboring cells. This enables precise energy management and operational efficiency, in addition to resulting in reductions in carbon dioxide emissions and operating costs.

Signifying a crucial step forward in its commitment to sustainability and technological innovation, Alaa Ibrahim, Chief Technical Officer at Umniah Jordan, commented, "The positive outcomes of the initial proof-of-concept were clear, and we are eager to see the benefits of this AI-enhanced powersaving technology on a larger scale. The implementation of Ericsson's Service Continuity Power Saving solution is not just about cost savings; it is about taking meaningful action towards reducing our environmental footprint and building a greener future."

Adding his remarks, Marwan Omari, General Manager of Ericsson Jordan, stated. "Ericsson's partnership with Umniah highlights our capability to innovate and also aligns with our vision to support our partners in achieving significant energy efficiencies and carbon footprint reduction. The partnership is a testament to our exceptional customer support - service continuity services through advanced artificial intelligence and machine learning solutions that ensure operational excellence without compromising service quality or our continued dedication to driving the industry towards a more sustainable future."



5G's Impact on Startup Success: Insights and Trends

Innovation entails creating value, and it is believed to be a fundamental source of significant wealth generation within an economy. Startups have become prominent in the last two decades as agents of disruptive innovation, utilizing technologies like 5G and cloud, among others.



have forged.

MENA Startup Development

Startups are known for their ability to develop innovative ideas, technologies and solutions to various industrial and non-industrial problems. They are often the 'risk takers' within an uncertain environment, exhausting all means to find investors and network with talents to establish their businesses into viable markets.

Countries that support and nurture start-up ecosystems often see a surge in innovation and economic growth. Within the Middle East and North Africa (MENA) region, policies, funding, infrastructure and mentorship programs help startups to attract talent, investment and cuttingedge technologies, ultimately giving them a competitive edge in the global market.

According to Wamda's research, the MENA start-up ecosystem witnessed a remarkable surge in funding in May 2024, raising an impressive USD 282 million. This figure marks a significant 413% increase from the previous month, signalling a robust rebound in investor confidence and activity.

Notably, the Global Startup Ecosystem Report 2024 (GSER 2024) included three UAE emirates—Dubai, Abu Dhabi, and Sharjah—among the top ten start-up ecosystems in the MENA region.

During a joint economic committee (JEC), H.E. Abdullah bin Touq Al Marri, Minister of Economy shed light on a number of incentives and advantages offered by the UAE economy to entrepreneurs and startups, both at legislative and regulatory levels.

According to a report published by the Dubai Chamber of Digital Economy, the entity aims to attract 300 digital startups to Dubai by the end of 2024. Known for its strong entrepreneurial spirit, Dubaibased startups have raised over USD 2 billion since 2017, accounting for approximately 96% of all funds raised in the UAE.

The Dubai Center for Artificial Intelligence (DCAI) Accelerator Programs are driving innovation in Dubai's government sector by developing new projects and addressing current and future challenges. This global initiative supports startups and entrepreneurs worldwide, reinforcing Dubai's leadership in leveraging cuttingedge technology to adapt to rapid sectoral changes.

Meanwhile, Abu Dhabi has been recognized as the fastest-growing emerging ecosystem in the region. As per GSER 2024, the emirate achieved USD 4.2 billion in Ecosystem Value from H2 2021 to 2023, representing a 29% CAGR.

Abu Dhabi's start-up ecosystem is thriving, offering global entrepreneurs unique opportunities to scale. With favorable regulations, government support for innovation, accessible funding, and a vibrant cultural mix, Abu Dhabi stands out among global tech hubs and is attracting significant international interest.

Additionally, Sharjah's position as a leading entrepreneurial hub has been further solidified after being ranked 4th in GCC region and 7th in the MENA region's start-up ecosystem rankings. Sharjah hosts over 60,000 SMEs and startups across six free zones and 33 industrial areas, and the Sharjah Entrepreneurship Center (Sheraa) serves as its incubator for the UAE's aspiring and established entrepreneurs.

Qatar is also emerging as a key start-up hub in the Middle East, driven by initiatives like the Startup Qatar Investment Program by the Qatar Development Bank and Invest Qatar's new initiative, Startup Qatar. These programs offer financial support, resources, and reduced costs to attract tech startups.

In April 2024, the Supervisory Committee of the Promising Omani Startups Programme announced the launch of the Oman Future Fund, a USD 5.2 billion VC fund aimed at empowering entrepreneurs, attracting foreign investments, and supporting tech-based companies over the next five years.

Advantages of Utilizing 5G in Startups

Evidently transforming global connectivity, startups continue to play a pivotal role in leveraging the potential of 5G and driving innovation.

One of the most significant impacts of the 5G revolution is the opportunity it creates for startups to innovate and disrupt various industries. 5G is not just a faster version of 4G, but a transformative technology that enables new applications, services, and business models that were not possible before.

5G's high data rates enable faster data transmission, which is crucial for applications like HD video streaming and real-time analytics, while its low latency capability is critical for timesensitive applications like remote surgery, autonomous vehicles, and AR/VR.

5G can also support a high density of IoT devices, enhancing smart city infrastructure and industrial automation, ensuring more stable connections.

Having said that, 5G technology significantly influences investment decisions in startups by unlocking new market opportunities, fostering technological innovation, enabling scalability, improving customer experiences, facilitating data analytics and AI, and driving infrastructure development.

Here are a few ways startups can harness the power of 5G:

- A startup can use 5G to precisely locate individuals in emergency situations.
 By using a phone connected to 5G, the startup can pinpoint the exact location of someone to within a few square meters.
- A startup that provides live video coaching for fitness enthusiasts can use 5G to stream high-quality video without buffering or lagging, and also use real-time feedback and analytics to improve the service.
- A startup specializing in autonomous vehicles can utilize 5G for seamless communication among vehicles, infrastructure, and cloud services, ensuring minimal latency and enhancing system safety and reliability.
- A startup developing 5G-enabled agricultural drones can utilize government 5G networks to operate

in farms where private 5G services are unavailable.

 A startup focused on smart sensors, wearables and connected machinery, which rely on rapid data analysis and transmission, can optimize operations with 5G.

In tandem with this, a 5G-optimized telco cloud combines the power of 5G networks with the cloud computing infrastructure provided by telecommunications companies.

Startups thrive on innovation, and a 5G-optimized telco cloud provides them with a powerful toolkit to bring their ideas to life. With ultra-fast, low-latency connectivity and edge computing capabilities, startups can develop applications that were once unimaginable, disrupt traditional markets, and create entirely new ones. From healthcare and transportation to education and beyond, startups are leveraging 5G-optimized telco clouds to address real-world challenges in innovative ways.

Telcos Supporting Start-Up Ecosystems

Telcos are actively fostering innovation and supporting startups through various programs and initiatives. Ericsson ConsumerLab's Startup 5G program exemplifies this, facilitating global connections between consumer product innovators and communication service providers over a 6–12-month engagement.

Moreover, Vodafone's Digital Innovation Hub in Salford's MediaCityUK offers startups access to transformative technologies like 5G and IoT, alongside high-speed internet, fostering an environment conducive to technological experimentation and growth.

AWS is also playing a crucial role in supporting startups worldwide through AWS Activate, providing training, resources, and cloud credits to fuel innovation. The ecosystem empowers startups to leverage cloud computing for disruptive innovation across sectors from lodging to healthcare.

In the Middle East, Umniah has partnered with Startupbootcamp to enhance The Tank—their business incubator—aiming to strengthen Jordan's entrepreneurial ecosystem. Similarly, du has teamed up with DIFC Innovation Hub to launch the 'du Business Entrepreneurship Programme' in the UAE, which will focus on driving innovation and supporting startups through cutting-edge initiatives.

In 2023, etisalat by e& celebrated entrepreneurship and innovation in the United Arab Emirates by hosting the third edition of the 'Hello Business Pitch' competition.

Moreover, Omantel hosted the UK Oman Digital Hub pilot program to support startups at Omantel Innovation Labs. This program offered advanced sessions on cybersecurity awareness, supply chain risk protection, developing a cybersecurity culture, and testing new solutions, thereby equipping startups with essential skills and knowledge.

Huawei launched its first-ever, one-stop shop for startups and developers in the region in 2021. This initiative aims to empower innovative entrepreneurs by providing access to advanced capabilities and enabling technologies. Additionally, Huawei's Eco-Development Department introduced a unique initiative to support regional companies that have recently launched their mobile apps in the Middle East and Africa. By leveraging Huawei's official app distribution platform, AppGallery, and the Huawei Mobile Service Core (HMS), startups can grow their user base and enhance their market presence.

Furthermore, in 2018, Zain Group opened the Zain Innovation Center (ZINC) in Kuwait. This co-working hub, the first-ofits-kind provided by a corporate entity in Kuwait, bolsters youth entrepreneurship and the start-up ecosystem in the country.

Finally, InMobiles' iGrow platform also contributes to the start-up ecosystem by presenting new business opportunities for startups and operators, further promoting innovation and growth.

These partnerships and initiatives underscore telcos' commitment to nurturing entrepreneurial talent and driving technological advancement on a global scale.

Forward-Looking Ecosystems

Innovation-driven ecosystems are pivotal for generating, developing, and scaling innovative ideas that can drive significant development impact. These ecosystems, comprising diverse actors such as startups, technology providers, and academic institutions, play a crucial role in bridging the commercial and knowledge economies.

Startups are particularly adept at leveraging technologies like 5G to disrupt industries and address societal challenges with agile solutions. In the Middle East, these ecosystems hold immense potential to accelerate economic growth and societal progress through technology-driven innovation.

With the rapid adoption of 5G and other cutting-edge technologies, innovation ecosystems are not only fostering hightech industries but also accelerating societal benefits through innovative solutions.

Ultimately, a robust innovation ecosystem transforms collective efforts into competitive advantages, driving sustainable growth, enhancing global competitiveness, and improving quality of life.



Start-up ecosystems in the MENA region are evolving, largely thanks to the supportive ecosystem telcos have forged



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Innovative Lifecycle Management in Telecom: Cutting Costs and Emissions

Lifecycle management is a critical enabler of business success; this encompasses reducing the carbon footprint. For telecom network infrastructure, this process requires a comprehensive strategy that addresses each phase of its lifecycle, from the earliest stages of design through to decommissioning.

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esign Phase In the design phase, choosing components and equipment with high energy efficiency ratings

is paramount. Such choices not only reduce the immediate energy consumption but also contribute to long-term lifecycle sustainability by cutting down on the need for frequent replacements.

In May 2024, the UAE's Telecommunications and Digital Government Regulatory Authority (TDRA) released a manual which provides updated technical standards for designing internal and external networks in new buildings. Implementing guidelines of the third edition of the Telecommunications Network Box Specification Manual will benefit various stakeholders by significantly lowering energy use and developer costs by at least 50%; reducing the size and cost of in-building telecom boxes by 30%; and cutting room spaces, sizes, and costs by 50%.

The updated manual from TDRA covers subsidiaries of the leading telecom operators in the UAE to ensure that in-building telecom rooms comply with security, environmental, and accessibility standards. This initiative aims to simplify network installation and maintenance, reduce the necessity for new equipment, and conserve resources.

Within Saudi Arabia's ALUla, stc Group's technical infrastructure, through its subsidiary TAWAL, was designed to blend seamlessly with nature, minimizing visual impact and ensuring non-interference with its surroundings, all with utmost precision to maintain functionality. The entities implemented several eco-friendly technical solutions to reduce energy consumption and carbon emissions to contribute to environmental sustainability.

The redesigned network tower is fully covered in mirrors, blending seamlessly with the surrounding landscape, marking a major step toward stc Group's goal of promoting sustainability and conserving natural resources. In this way, material selection is equally significant in lowering the environmental impact right from the start.

Manufacturing Phase

As the process enters the manufacturing phase, there is a consequential shift in focus towards energy sourcing and waste management.

Utilizing renewable energy sources, such as solar or wind power, in manufacturing processes, as well as implementing energy-saving technologies significantly reduces the carbon footprint of telecom equipment.

Bearing this goal in mind, etisalat by e& and Huawei have joined forces to launch the MENA region's first netzero 5G Massive MIMO site, powered entirely by renewable energy. Revealed at COP28, this off-grid 5G site, managed by an AI-based energy system, marks a major advancement in sustainable network infrastructure and is expected to cut CO2 emissions by about 26 tons annually.

Moreover, etisalat by e& is modernizing its network with energy-efficient equipment and solutions, cutting power consumption by 15% to 50%. The telco employs smart power-saving features, such as AI-driven power amplifier shutdown and intelligent radio channel shutdown, to adjust traffic load without compromising user experience.

Waste management strategies are crucial here—adopting lean manufacturing techniques helps in minimizing waste production, and robust recycling programs for manufacturing by-products ensure that any waste generated is effectively managed and repurposed rather than discarded.

Citing an example, in 2023, Nokia announced plans to reduce packaging waste across its Fixed Networks Lightspan portfolio, cutting the packaging size by 60% and the overall weight by 44%.

Moreover, Huawei utilizes an innovative laser welding manufacturing process technology to reduce both energy consumption and environmental pollution during its antenna production, ensuring antennas support full lifecycle green sustainability.

Deployment Phase

In the deployment phase, selecting sites with minimal environmental impact and deploying energy-efficient equipment such as advanced telecom towers and base stations contributes to overall lifecycle sustainability.

Nokia affirmed that it will continue to create more efficient capacity solutions for a more productive, sustainable, and inclusive world in 2024 and beyond. One way of doing this is by activating massive 5G capacity with Nokia AirScale. This will help to anticipate demographic evolution and urban development in the years to come by providing a long-term capacity solution. Nokia AirScale has enabled companies to reduce energy consumption, lower CO2 emissions, participate in recycling, and improve sustainability.

Additionally, Rural Connect is an innovative, full turn-key green solution developed by the Nokia MEA Center of Expertise, specifically for MEA rural requirements and related challenges. Service providers can use it to connect underserved areas, bringing mobile connectivity to regions with low Average Revenue Per User (ARPU) while fully optimizing Total Cost of Ownership (TCO).

Contributing to a sustainable world, Huawei has undertaken ICT innovations in three areas: building green ICT infrastructure, accelerating the development of renewables, and enabling energy-efficient and lowcarbon industries.

Statistics indicate that green antennas can save 3,472 kWh of electricity per site annually, which equates to a reduction of 753 kg in carbon emissions. Remarkably, Huawei's green antennas have been successfully deployed in the Middle East, enabling a network coverage increase of 4.8 dB and site traffic increase of 16.2% without the associated power consumption increase. As a result, operators were able to build networks with better performance and energy efficiency as part of their network sustainability goals.

Operational Phase

During the operational phase, managing the energy consumption of the network infrastructure is vital to its lifecycle.

Powering infrastructure with renewable energy sources is an increasingly viable option that significantly cuts emissions. Energy-efficient cooling systems also help in maintaining optimal operating temperatures while reducing energy consumption.

Aiming to become a net-zero ICT service provider and promote sustainable development in the region, du has implemented multiple energy-saving solutions such as traditional solar power, VRLA battery-Generator hybrid systems and free cooling systems.

To reach its net-zero targets by 2050, and reduce direct and indirect gas emission, du is among the first operators in the world to adopt innovative solar panel solutions. The Solar-on-Tower (SOT) solution, a patented in-house invention by du, is an innovative and seamlessly integrated solution that has been deployed at 60 sites across du's network. The telco plans to expand integration to 270 sites by the end of 2024. Each site using the SOT solution has reportedly saved 26.6 MWh of energy and reduced carbon emissions by 11 tons annually.

Zain KSA has also adopted the latest infrastructure deployment solutions to eliminate carbon emissions through the world's first zero-emission 5G network. This involves creating towers that can be shared with other telecom operators that not only help in optimizing resource utilization but will also reduce the need for multiple towers, minimizing the overall impact on the environment.

The first zero-emission 5G network worldwide operates entirely on clean energy harnessed from the Red Sea Global's 760,000+ solar panels. The towers, constructed with cuttingedge 3D printing technology, replace traditional telecom towers and deliver high-speed connectivity across the entire region.

Nokia is committed to using 100% renewable electricity in its own facilities

by 2025. Additionally, it aims to achieve 95% circularity by 2030, managing operational waste from offices, labs, manufacturing, installation, and product takeback.

Moreover, network optimization through technologies like software-defined networking (SDN) and network function virtualization (NFV) allows for better resource utilization, enhancing the overall efficiency of the network.

End-of-Life Phase

When telecom equipment reaches the end of its lifecycle, attention turns to managing its end-of-life phase.

Effective recycling and reuse practices are crucial; components and materials from decommissioned equipment should be reused wherever possible, and robust recycling programs should be in place to recover valuable materials.

Under the Ericsson Product Take-Back program, stc is recycling waste from end-of-life electronic and electrical equipment. Through collection, decommissioning, and recycling efforts, Ericsson and stc have recycled approximately 438 metric tons of waste electrical and electronic equipment to date.

Safe disposal practices, particularly for hazardous materials, are essential to prevent environmental contamination, while compliance with local and international regulations for electronic waste disposal ensures that disposal is handled responsibly.

By 2030, annual e-waste production could soar to an astonishing 75 million metric tons. In response, Arab States, including Algeria, Egypt, Kuwait, Lebanon, Qatar and the UAE, have issued national laws for hazardous waste, including e-waste.

In a move that aims to pioneer sustainable telecommunications, du has introduced an eco-friendly free Tourist SIM that includes 1 GB of complimentary data for 24 hours and access to a highspeed 5G network, among other benefits.

In tandem with this sustainability arc, e&'s Green SIM Cards are more

environmentally-sustainable than traditional cards and have a lower carbon footprint.

Moving Towards a Green Network Lifecycle

By integrating these approaches at every stage—from design to decommissioning—companies can achieve significant environmental benefits and contribute to global sustainability efforts.

Investing in research and development (R&D) fosters innovation in new technologies and methods to further reduce the carbon footprint.

Furthermore, engaging stakeholders through training and raising awareness among employees about sustainability practices helps embed these principles into everyday operations. Educating customers about the sustainability features of products and services can also drive broader support and adoption of green practices.



By integrating these approaches at every stage—from design to decommissioning—companies can achieve significant environmental benefits and contribute to global sustainability efforts





Explore Anywhere: Virtual Tourism Redefined with Advanced Connectivity

Virtual tourism revolutionizes access to diverse locations, offering personalized guest experiences and heightened entertainment. Utilizing advanced digital technology, virtual tourism combines various technical aspects to showcase the essence of destinations and attractions.

irtual reality (VR) technology immerses users in computergenerated environments, providing a realistic and interactive way to experience a place. In turn, users can explore surroundings, interact with elements, and feel present despite finding themselves in a non-physical environment. Augmented reality (AR) enhances this experience by overlaying digital information onto the real world. For example, AR apps can display popular attractions on a live view of the destination or offer detailed information when users point their devices at specific points of interest.

The integration of 5G and Internet of Things (IoT) technologies further enriches virtual tourism by creating a network of connected devices and sensors, making virtual exploration seamless and engaging.

Countries like the United Arab Emirates (UAE) are at the forefront of virtual tourism, leveraging AI and hyperpersonalized experiences to set new standards and significantly contribute to the UAE's ambitious tourism revenue target of USD 125 billion by 2031.

Immersive Web

By 2025, metaverse-enabled tourism



is expected to reach a global market value of USD 3.26 billion, representing a groundbreaking evolution of the internet. Blending virtual reality (VR) and augmented reality (AR) can truly deliver highly interactive and engaging experiences across various industries, including tourism.

At its heart, the metaverse functions as a 3D internet, offering a digital world where users can explore, interact, and even inhabit virtual spaces. This realm extends beyond fictional landscapes to include highly accurate recreations of real-world destinations, enabling users to virtually visit and experience these locations.

Travelers can use immersive technologies like VR and AR at different touchpoints, from initial trip inspiration and planning to leisure and entertainment.

Dubai exemplifies the proactive embrace of emerging technologies to drive economic growth. The city's extensive development of VR experiences highlights its strategic focus. A notable initiative is the Dubai Metaverse Strategy, which aspires to position Dubai as a global hub for VR development and adoption. This strategy supports the VR industry through funding for startups, VR training programs, and the promotion of VR tourism.

Integrating AR and AI with VR enables virtual tours to adapt dynamically and provide personalized guidance in real time, resulting in the transition towards edge computing. To greatly enhance the virtual tourism experience, images and data must be processed closer to the end-user, requiring ultra-low latency and high bandwidth.

As a result, private 5G networks and edge computing become crucial for AR/VR applications, particularly in virtual tourism.

Virtual Tourism in the Middle East

In 2024, Statista reported a 30% increase in VR tourism adoption, underscoring its growing popularity,

while Gartner forecasts that by 2025, 50% of global travel agencies will utilize VR to showcase destinations.

Immersive web technologies bring virtual tourism experiences to life, enabling visitors to embark on virtual tours of landmarks, museums, and heritage sites. These technologies offer captivating views of real and digitally created locations.

According to PwC, the GCC economies in the Middle East are set to benefit significantly from the metaverse and the 3D internet's impact on travel and tourism, with an anticipated gain of USD 3.2 billion by 2030. A separate market research study has also indicated that the global virtual tour industry is expected to reach approximately USD 24 billion by 2028.

Immersive technologies attract tourists by offering innovative ways to explore destinations. They enhance visitor experiences through interactive and personalized tours, making each trip more memorable. This is a key reason why Saudi Arabia is focusing heavily on advanced technologies to achieve its goal of attracting 100 million tourists by 2030.

These technologies are also important tools for preserving and promoting cultural heritage, presenting the rich history and traditions of the Middle East in captivating and easily accessible formats.

Here are some innovative virtual tourism projects across the Middle East:

- Virtual Heritage Sites and Cities: Countries like Jordan, Egypt, and Lebanon are pioneering VR projects to digitally recreate historical sites and cities. One of which is Jordan's VR projects which allow tourists to explore the ruins of Petra in a fully immersive 3D environment.
- The Baalbek Reborn project in Lebanon offers a digital replica of the ancient Roman city, Heliopolis, allowing users to explore this UNESCO heritage site from their homes in 8K resolution.
- Similarly, Egypt is using VR to showcase the pyramids of Giza. Egypt has also launched Metatut, a virtual

city inspired by its ancient civilization, combining historical elements with futuristic design to celebrate the 100-year anniversary of King Tutankhamun's tomb discovery.

 Virtual Tours: Middle Eastern countries are enhancing tourism with innovative VR experiences. Visit Dubai is offering virtual tours of top landmarks like the Al Fahidi Historical Neighborhood and Burj Al Arab Hotel.

The Dubai Museum also takes viewers on an immersive journey through the city's history, beginning in a modest fishing village and culminating in a modern metropolis. Moreover, Sharjahverse, launched at GITEX 2022, is a government-backed metaverse covering all of Sharjah, offering a highly realistic view of the city, while also creating metaverse jobs.

Yas Island's virtual experience also allows users to explore Abu Dhabi's attractions, including Louvre Abu Dhabi and Al Ain Oasis, while Saudi Arabia launched the National Cultural Metaverse Platform for virtual history tours in 2024.

In the airline sector, Qatar Airways' QVerse lets travelers explore cabin interiors and Hamad Airport's VIP area, while Emirates Airlines' VR app offers virtual tours of their plane cabins and Dubai hotels.

• Virtual Pilgrimage: Saudi Arabia provides a VR experience enabling pilgrims to virtually visit the Black Stone at the holy mosque in Makkah, known as the Kaaba. This virtual pilgrimage enables users to experience the sacred site from any location, avoiding large crowds and lengthy queues.

Bahrain's Al-Fateh Mosque also provides a virtual reality tour that lets visitors explore the mosque's interior and learn about its significance, enhancing accessibility and engagement for global audiences.

As VR and AR mature, they are poised to enhance Middle-Eastern economies by streamlining operations, offering immersive content, optimizing processes, and facilitating collaboration, thereby enhancing user experiences. The Middle East is rapidly emerging as a hub for immersive technologies, aiming to diversify its economy and bolster global competitiveness. The GCC region, in particular, is expected to experience significant VR and AR adoption, with a projected compound annual growth rate (CAGR) of 39% from 2023 to 2028, according to research from MarkNtel Advisors.

The metaverse has a definite potential to transform key sectors in the region, with a PwC Strategy& report suggesting it could contribute around USD 15 billion to GCC economies by 2030. The travel and tourism sector is expected to benefit the most, with an estimated USD 3.2 billion economic impact across the GCC by that time.

Benefits of Virtual Tourism and the Role of 5G and IoT

5G connectivity is pivotal for advancing virtual tourism. With its ultra-low latency and high bandwidth, 5G networks enable seamless VR and AR experiences. This high-speed connectivity allows users to interact with virtual environments in real-time, significantly enhancing their sense of presence and engagement.

For instance, users can explore ancient ruins, walk through bustling city streets, or attend virtual tours with minimal lag and high-quality visuals, making the experience more lifelike and enjoyable.

Additionally, the Internet of Things (IoT) plays a significant role in virtual tourism by enabling a network of interconnected devices and sensors. IoT devices can collect and transmit real-time data about tourist attractions, weather conditions, crowd density, and more. This data enhances the accuracy and realism of virtual tourism experiences, allowing users to make informed decisions and enjoy personalized interactions with virtual environments.

From a business perspective, virtual tourism opens new avenues for revenue generation and marketing. Tourism agencies, hotels, and cultural sites can leverage VR and AR to attract potential visitors, showcase their offerings, and create memorable promotional experiences. This technology also reduces the operational costs associated with physical tours and allows for scalable virtual experiences that reach a global audience.

Moreover, virtual tourism promotes sustainability by reducing the environmental impact of travel. Virtual visits decrease the need for longdistance travel, thereby lowering carbon emissions and preserving natural resources. This aligns with global efforts towards sustainable tourism practices and encourages responsible travel behaviors.

Telcos Pioneering Virtual Tourism

Telecommunications companies are playing a pivotal role in the burgeoning field of virtual tourism, leveraging advanced technologies to create immersive experiences and transform the way people explore the world.

In 2023, Ooredoo powered the firstever 5G-enabled FIFA World Cup™, showcasing the potential of high-speed networks to enhance global tourism events. This milestone demonstrated how 5G can support a digitally driven lifestyle, as noted by e& life's CEO, Khalifa Alshamsi, who emphasized that advanced technologies like Virtual Reality (VR) and Augmented Reality (AR) are crucial for future immersive experiences. By leveraging their extensive assets and customer base, e& is set to accelerate growth and push the boundaries of digital engagement.

NEOM Tech & Digital Co.'s XVRS platform is another significant innovation contributing to virtual tourism. This platform creates a cognitive digital twin metaverse, allowing visitors to experience NEOM as avatars or holograms. XVRS provides a virtual representation of NEOM, aiding in the construction of this futuristic city while offering a unique digital tourism experience.

Moreover, in a strategic move, Omantel announced a Memorandum of Understanding with Visit Oman, marking a revolutionary alliance aimed at advancing digital innovation in Oman's tourism and technology sectors. This partnership is set to drive significant advancements, integrating cutting-edge digital solutions into the tourism experience.

ZTE has also made a notable contribution to virtual tourism through the introduction of the nubia Pad 3D II, the world's first 5G+AI eyewear-free 3D tablet. Equipped with Neovision 3D Anytime technology, this device supports system-level real-time conversion from 2D to 3D, allowing users to enjoy 3D visual effects anytime and anywhere with a simple click.

In conclusion, virtual tourism, powered by technologies like 5G and IoT, transforms how people explore the world, offering accessibility, immersion, and sustainability benefits. As these technologies continue to evolve, virtual tourism will likely become an integral part of the tourism industry, providing innovative solutions to enhance global travel experiences.



Virtual tourism, powered by technologies like 5G and IoT, transforms how people explore the world, offering accessibility, immersion, and sustainability benefits



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Huawei Maintains Lead in the 5G RAN Race



Huawei has been named a leader in GlobalData's H1 2024 5G market report, "5G RAN: Competitive Landscape Assessment." This is the sixth consecutive year that Huawei has received this recognition since GlobalData began releasing this report in 2019, highlighting Huawei as a market leader in 5G RAN products and solutions.

The report assesses the competitiveness of 5G RAN equipment vendors across five aspects. Notably, energy efficiency is a key aspect of assessment. Huawei's portfolio was ranked as the leader in all five aspects. This reflects Huawei's long-term efforts to deliver superior performance and experience, simplified deployment, efficient and green 0&M, and smooth network evolution.

Huawei's Market-Leading Product Suite

The report ranks Huawei's AAU products ahead of competitors in portfolio diversity, module output power, and compactness. Huawei's full series MetaAAUs achieved scaled deployments globally to deliver optimal coverage and energy efficiency with the smallest possible site size.

The company's FDD Massive MIMO products, which are compact and easy to deploy, support single-band, dual-band, and tri-band configurations, delivering 10-fold larger capacity and 10 dB better coverage than 4T4R. The solution has been deployed on more than 100 networks around the world and is the only solution that has been commercially adopted on a large scale.

Huawei's RRU products are rated higher than competitors in terms of output power, supported frequency bands, and compactness. Huawei's tri-band 8T solution supports 1.8 GHz, 2.1 GHz, and 2.6 GHz based on true wideband technologies. It works alongside FDD beamforming, tripling spectral efficiency and improving coverage by 7 dB, ultimately consuming 30% less energy than 4T4R.

Huawei's BBU products outperform competitors in capacity, type, number of MIMO layers, and narrowband IoT. These advantages facilitate the medium- and long-term evolution of operator networks.

Multi-level Technology Integration

Huawei's innovative energy-saving technology, 0-bit 0-watt, is supported at the equipment, site, and at network levels. All of Huawei's AAUs, RRUs, and BBUs support 0-bit 0-watt, enabling 99% in-depth energy conservation, whilst also supporting on-demand wakeup.

This energy design has been widely adopted on operator networks at the equipment level. At the site level, the main equipment works with site power supplies to ensure 0-bit 0-watt capabilities.

At the network level, the RAN Intelligent Agent provides on-demand, intelligent scheduling of resources to create dynamic site-specific energy policies based on fluctuating traffic demand.

MYCOM OSI Launches EAA Assurance Cloud Globally on AWS Marketplace



MYCOM OSI's flagship SaaS offering, EAA Assurance Cloud, is now available globally on AWS Marketplace, a digital catalog that makes it easy to find, test, buy, and deploy software.

The EAA Assurance Cloud enables CSPs to accelerate their time-to-market (TTM) for consumer and enterprise services and achieve differentiated network performance and improved customer experience. The SaaS model additionally unlocks commercial benefits that lower the total cost of ownership (TCO) of a multidomain, multi-vendor Service Assurance system.

MYCOM OSI has developed a highly efficient and differentiating SaaS control plane on AWS Cloud that delivers the EAA Service Assurance Portfolio, which comprises of Network Performance and Fault Management, Service Quality Management, Automation and Al Analytics applications.

"CSPs across the telecom industry are seeking flexible and efficient mission-critical solutions to keep pace with evolving network and service complexities," said Dirk Michel, SVP for SaaS and Digital Technology at MYCOM OSI. "By accessing the Assurance Cloud SaaS offering through AWS Marketplace, customers can easily integrate with our proven Service Assurance and AI-based capabilities, taking a significant step towards achieving end-to-end digital and cloud transformation goals. Our existing customers can also streamline their procurement process and optimize their cloud spending by moving to or renewing their Assurance Cloud contracts through AWS Marketplace."

MYCOM OSI's deep expertise in Service Assurance, combined with the capabilities and flexibility of the AWS Cloud, has enabled it to provide its customers with a truly differentiated SaaS offering.

Nokia Looks Forward to Stronger Year-End Growth



In Q2 2024, Nokia recorded an 18% decrease in net sales and an 8% decline in operating profit compared to the previous year. Despite these challenges, this quarter showed robust cash generation, yielding a free cash flow of EUR 394 million, supported by Nokia's ongoing normalization of its working capital position.

With the challenges of 2023 conquered and more normalized customer inventory levels, Nokia is looking forward to "a stronger second half and a return to growth," as it ventures towards 2025.

In Q2, Nokia announced two major transactions in the network infrastructure segment to support

its strategic goal of active portfolio management: the divestment of Alcatel Submarine Networks to the French State and the acquisition of Infinera to increase the scale and profitability of its Optical Networks business in North America.

"These transactions will focus and strengthen our network infrastructure business with its future built on three market-leading units in fixed networks, IP networks and optical networks. We are investing in network infrastructure as we see a compelling opportunity in this business to drive mid-single digit net sales growth and improve our profitability to a mid-to-high teens operating margin over time," explained President and CEO, Pekka Lundmark.

In June 2024, Nokia officially launched its Open Innovation Lab in Dubai, significantly enhancing the technological landscape of the Middle East and Africa (MEA) region. This initiative aims to drive regional innovation and accelerate the adoption of cutting-edge technologies like cloud, AI, and network automation.

Segment Breakdown

In the network infrastructure segment, Nokia secured several significant fiber deals, including in the U.S., and received orders from a U.S. distributor for both fixed and IP products. In the mobile networks segment, the market dynamic remains challenging as operators continue to be cautious, but there has been significant customer tendering activity.

In the cloud and network services segment, Nokia has demonstrated good progress. The entity has concluded deals and outlined organic efforts set to bring about new API capabilities and orchestration automation to customers.

"Looking forward, we believe the industry is stabilizing, and given the order intake seen in recent quarters, we expect a significant acceleration in net sales growth in the second half," concluded Lundmark.

Ericsson in Q2 2024: Taking Proactive Steps for Long-Term Business Success



In Q2, Börje Ekholm, President and CEO, Ericcson, said, "We remained focused on matters in our control to optimize our business amid a challenging market environment, with industry investment levels unsustainably low."

As per Ericsson's Q2 2024 results, the reported net sales of SEK 59.8 billion declined by -7% YoY, reflecting reduced operator investment levels across most geographies, while the North America market area grew by 14%.

In addition, a new 5G patent licensing agreement was signed during the quarter and the IPR licensing revenue increased to SEK 3.9 billion. Following new agreements, Ericsson is on track to deliver its 2024 IPR revenue target of SEK 12-13 billion as opportunities for further grow emerge.

82% of IPR licensing revenues were reported in the 'networks' segment, while the remainder fell into the 'cloud software' and 'services' segments.

Moreover, Ericsson's reported gross income for Q2 2024 also increased to SEK 25.8 billion, with a gross margin of 43.1%. This was supported by increased IPR licensing revenues, cost-reduction actions and competitive portfolio offerings.

MEA Focus

On the other hand, the MEA market's sales of SEK 4.9 billion declined by -8%, primarily due to macroeconomic headwinds and a slowdown in operator CapEx investments in several markets. During Q2 2024, a key leadership transition occurred in the MEA region. Patrick Johansson was appointed as the new Head of Market Area Middle East & Africa (MMEA) and Senior Vice President, replacing Fadi Pharaon, and will hold office by August 2024.

In this quarter, Ericsson also opened its new office in Amman, Jordan, with Marwan Omari assigned as the General Manager of Ericsson Jordan. This reaffirms Ericsson's commitment to Jordan by reinforcing its position within the country's dynamic ICT industry.

In an MoU with Vodafone Oman, Ericsson's 'Connect To Learn' program will be leveraged to enhance digital skills development, including programs designed to develop and attract Omani youth and talent into the ICT industry.



5G-Advanced: Breaking the Digital Barrier for a More Connected World

A staggering 5.44 billion, or 67.1%, of the global population has embraced internet usage via mobile phones, as revealed in a recent study by Statista, highlighting significant connectivity progress through 5G-Advanced (5G-A) while underscoring persistent digital disparities.

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cornerstone of information, has united people, governments, and businesses, fostering an interconnected world and transcending geographical boundaries over the decades. Constant innovation has since been driven by our dependence on technology, resulting in transformed lifestyles and business operations.

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This global advancement has been facilitated through the advent of 5G-A, the latest generation of networks, and a technology game-changer. 5G-A serves as a beacon of hope for unconnected communities, promising a transformative change that could aid in driving productivity and economic growth.

Despite the worldwide integration of 5G-A and the unwavering efforts being implemented to bridge the gap, the digital divide persists, affecting economies and individuals, particularly in regions where access to connectivity networks remains limited or non-existent.

The 5G-A Landscape: Connecting the Unconnected

Over the years, the digital divide has become broader, primarily due to a wide array of factors, including limited access to technology, affordability, and a lack of digital skills and awareness.

Bridging the digital gap demands improved networks offering enhanced bandwidth and broader coverage. The deployment of 5G-A will substantially close these gaps, augment connectivity, and support diverse applications that will benefit underserved communities.

High-speed and reliable connections, offered by 5G-A, will empower businesses and organizations, fostering economic growth and social inclusion that will enrich the lives of unconnected individuals through access to online services and communication tools. Telecommunications companies are making significant strides in ensuring connectivity and connecting the unconnected through various innovative initiatives. The integration of 5G Non-Terrestrial Networks (NTN) marks the dawn of a new era in skyhigh connectivity, extending coverage to remote and underserved areas. Across 35 cities and regions, a unified launch of 5G-A connectivity is heralding a new era of seamless digital experiences for millions.

stc Group's commitment to seamless connectivity is connecting millions, ensuring that more people have access to reliable digital services. e& is enhancing connectivity with Equinix's Equinix Fabric® in two key markets, and has partnered with Cato Networks to boost next-gen connectivity and SASE capabilities alongside SmartHub, further improving network performance and security.

Zain's latest sustainability report highlighted the company's efforts in providing meaningful connectivity, focusing on inclusive and sustainable digital access. Additionally, the Oman-IX is set to accelerate the Sultanate's global interconnectivity, fostering a more connected and digitally inclusive world.

Improved connectivity will generate more job opportunities and improve economic conditions, leading to a more digitally inclusive society.

Furthermore, 5G-A will play a pivotal role in expanding network coverage and connecting people in areas where digital infrastructures are currently lacking.

According to a statistic, as of April 2024, 89.4% of the Central African Republic remains virtually non-existent. Other countries facing significant challenges in internet accessibility include Burundi, South Sudan, Niger, Yemen, Afghanistan, Ethiopia, Burkina Faso, and Madagascar. This significant barrier will be resolved through the affordability of 5G-A.

Furthermore, 5G-A is expected to offer 20% higher data rates compared to standard 5G networks, according to Nokia. This enhancement will further improve user experience and support advanced applications requiring low latency such as communication tools, augmented reality (AR), and virtual reality (VR).

A More Intelligent and Connected World The digital era has profoundly shaped countless lives, accentuating its role in embracing the modern world and successfully combating the digital divide.

Ericsson projects that by 2029, over five billion people will be connected to 5G network—approximately 85% of the global population. This emphasizes the rapid growth and expansion of 5G and 5G-A and highlights the efforts that need to be taken to close the digital barrier.

The deployment of additional infrastructures in rural areas is certainly underway, however, it is imperative to acknowledge that equipping people with digital awareness, access, and skills training also play substantial roles in advancing communities and building a more digitally connected world. Addressing digital infrastructure and socioeconomic limitations is important to keep pace with the rest of the world.

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5G-A serves as a beacon of hope for unconnected communities, promising a transformative change that could aid in driving productivity and economic growth



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Moreover, implementing long-term and sustainable solutions, including programs equipping the unconnected with digital skills essential for the modern world, could successfully narrow the digital knowledge gap.

The 5G-A rollout and other global initiatives aimed at closing the digital divide depicts a promising future, yet efforts should remain consistent. With the world's total population continuously increasing, unswerving action should be taken to prevent the digital divide from spreading further.

Telcos Implementing and Embracing 5G-Advanced Technologies

Telecommunications companies across the Middle East, and globe, are at the forefront of implementing 5G-Advanced technologies, breaking digital barriers, and creating a more connected world.

Nokia has entered the 5G-Advanced era with the world's first immersive voice and audio call, marking a significant milestone in enhancing digital communication experiences. Their innovations promise to make digital interactions more immersive, as highlighted by Nokia's Aji Ed, who emphasized the transformative potential of 5G-Advanced in creating richer, more engaging digital experiences.

In the UAE, du is committed to establishing the nation as a leader in 5G-Advanced technology. At MWC 24, du announced its commitment to building the UAE as a 5G-Advanced country and is spearheading the commercial deployment of these technologies. This initiative is set to enhance the nation's digital infrastructure, making advanced digital services more accessible to both enterprises and government sectors. Moreover, du's efforts in delivering global smart networks are pivotal for the UAE's digital transformation.

Ooredoo Kuwait has achieved a significant breakthrough with its 5G-Advanced mmWave technology, enhancing the capabilities of its network and providing users with faster and more reliable connectivity. Similarly, Zain KSA has shelved a major 5G expansion plan with a SAR 1.6 billion investment, underscoring the strategic importance of 5G-Advanced in Saudi Arabia's digital future. These advancements are crucial for supporting high-speed, low-latency applications and services.

China Mobile is pioneering the future with its commercial 5G-A deployment, setting a benchmark for other telcos worldwide. Their efforts are driving the adoption of 5G-Advanced technologies, ensuring that users benefit from enhanced network performance and new digital services.

Notably, Vodafone Qatar's 5.5G trial achieved remarkable speeds of over 10 Gbps, showcasing the potential of 5G-Advanced technology in revolutionizing internet connectivity. This breakthrough paves the way for ultra-fast internet speeds and more robust network performance, contributing to the digital advancement of the region.

MYCOM OSI is delivering assurance, automation, and AI capabilities to enterprise networks, ensuring that the deployment of 5G-Advanced technology is seamless and efficient. These capabilities are vital for managing the complex and dynamic nature of modern networks.

Finally, Rosenberger's highperformance connectivity solutions boast 5G-Advanced infrastructure, supporting the deployment and expansion of next-generation networks. Their technology is crucial for building the backbone of a more connected and digitally integrated world.

These initiatives by telcos around the world highlight the transformative power of 5G-Advanced technologies. By breaking digital barriers and fostering a more connected world, these companies are not only enhancing their network capabilities but also driving global digital progress.

Final Thoughts

The advent of technologies like 5G and 5G-Advanced, which offer faster

speeds and increased capacity, hold immense potential that could actively narrow the digital divide. The evolution of network technology underscores its pivotal role in bringing people closer together and establishing global economic growth and social movement.

The world is moving at an unprecedented speed of progress and the transformative power that 5G-A holds will enable a driving force to advance our generation to a more connected and intelligent world, ensuring no one gets left behind in the pursuit of global progress.



The 5G-A rollout and other global initiatives aimed at closing the digital divide depicts a promising future, yet efforts should remain consistent



Global Internet Outage Suspends Operations

A global internet outage has caused widespread telecommunication breakdowns and shutdowns of Windows operating systems, leading to chaos at broadcasting stations, airports, railways, and banks.

Reports of grounded flights and telecommunication breakdowns in certain geographies have been frequently observed.

In the wake of presumed directed affiliation, Microsoft issued a statement stating that it was taking "mitigation actions" in response to service issues. Although, there is no clear link between the entity and the global outages.

"Our services are still seeing continuous improvements while we continue to take mitigation actions," Microsoft said in a post on social media platform, X. Australian telecommunications firm, Telstra, has suggested that the outages were caused by "global issues" plaguing software provided by Microsoft and cybersecurity company, CrowdStrike.

CrowdStrike has confirmed it is racing to help customers affected by a massive IT outage caused by a fault in its software.

George Kurtz, CrowdStrike's Founder and Chief Executive, said, "CrowdStrike is actively working with customers impacted by a defect found in a single content update for Windows hosts. Mac and Linux hosts are not impacted.

"This is not a security incident or cyberattack. The issue has been identified, isolated and a fix has been deployed. We refer customers to the support portal for the latest updates and will continue to provide complete and continuous updates on our website."

Indian Government Considers Bill Granting Free Internet Access for All Citizens

The Indian government has approved the discussion of a private member's bill aimed at providing every citizen with free internet access, ensuring equitable availability for residents of India's remote and underdeveloped areas.

"No citizen shall be liable to pay any kind of fee or charges or expenses which may prevent him or her from accessing internet facilities," the bill has proposed.

In December 2023, CPI(M) member, V Sivadasan, introduced the bill in the Rajya Sabha. India's Telecom Minister, Jyotiraditya Scindia, has since reportedly informed the Rajya Sabha secretary-general of the president's recommendation and has encouraged the House to consider the bill. Private members' bills that involve expenditure from the exchequer necessitate the president's permission. The relevant ministry facilitates this process.

The Bill asserts that every citizen should possess the entitlement to free internet access. It mandates that the respective government should ensure universal internet accessibility for all citizens, with special provisions aimed at granting equal access to individuals residing in economically disadvantaged and geographically remote areas of the country.

The Bill aims to broaden the constitutional right to freedom of speech and expression for all citizens by ensuring free access to the internet. It also aims to eliminate the digital divide within society.

GSMA Predicts Asia-Pacific Mobile Industry to Top USD 1 Trillion by 2030

The mobile industry is expected to contribute over USD 1 trillion to the Asia-Pacific economy by 2030, driven by the rapid adoption of 5G technologies in the region. This growth is projected to surpass the global average growth rates, as stated in the GSMA's Mobile Economy Asia Pacific 2024 report.

The report, unveiled at the GSMA's Digital Nation Summit in Singapore, revealed that mobile technologies and services accounted for 5.3% of the GDP in the Asia Pacific in 2023, amounting to USD 880 billion in economic value.

The Digital Transformation Catalyst The main benefits come from the productivity enhancements brought about by mobile services and digital transformation in industries like manufacturing and fintech. The report predicts that the contribution of mobile to the APAC economy will outpace the global average, growing by 15% in the region compared to the global average

growth of 12% from 2023 to 2030.

The commercial deployment of 5G standalone (5G SA) networks in seven APAC countries, including Australia, India, Japan, the Philippines, Singapore, South Korea, and Thailand, will drive this growth. These networks, along with technologies like 5G-Advanced, RedCap, and AI, will create opportunities for new 5G applications and investments in the region.

The report estimates that 5G will add nearly USD 130 billion to the APAC economy by 2030, with the manufacturing industry expected to benefit the most from applications like smart factories, smart-grids, and IoTenabled products.

DRC Unveils Advanced ICT Development Center

The Congolese Minister of Posts, Telecommunications, and Digital Affairs, Augustin Kibassa Maliba, recently inaugurated the African Institute for the Development of Information and Communication Technologies in Kinshasa, funded by Huawei. This new institute aims to enhance local skills in the digital sector and address the growing demand for information and communication technologies (ICT), and is part of the National Digital Plan Horizon 2025.

This initiative seeks to reduce the digital skills gap in the Democratic Republic of Congo (DRC) and stimulate innovation and entrepreneurship in the tech sector. The minister emphasized the importance of this institution in promoting digital inclusion, which is essential for the country's economic and social development. The partnership with Huawei, a global telecommunications giant, ensures access to cutting-edge technologies and high-quality training, thereby boosting the skills of young Congolese.

The institute will offer a variety of training programs, ranging from basic ICT skills to advanced technologies such as artificial intelligence and big data. Additionally, it plans to collaborate with local and international universities to develop curricula tailored to the needs of the market and local businesses. This concerted effort aims to create an ecosystem conducive to innovation and job creation in the digital sector, contributing to the digital transformation of the DRC.

Ireland's Data Centers Consume More Electricity Than Urban Homes

In Ireland, data centers, known for their high energy demands, now consume more than a fifth of the electricity used across EU member states. This surpasses the combined electricity consumption of all urban households in Ireland, as per official figures released.

According to Ireland's Central Statistics Office (CSO), data centers accounted for 21% of the country's metered electricity usage in 2023, marking a significant increase from 5% in 2015 and 18% in 2022. This milestone represents the first time that data centers' electricity consumption has exceeded that of urban homes, which accounted for 18% of Ireland's electricity usage in 2023.

Meanwhile, rural households consumed 10% of the country's electricity. These findings have emerged amidst ongoing debates in Ireland concerning the energy demands of data centers, where extensive computer storage operations are housed. Concerns are mounting over the strain that data centers exert on the electricity grid, particularly as demand surges and advancements in artificial intelligence (AI) are pursued.

Earlier this year, EirGrid, Ireland's grid operator, warned that impending "electricity supply challenges" were expected to emerge in the coming decade. These challenges are attributed partly to the increasing demand driven by large energy consumers such as data centers.

According to a January report from the International Energy Agency, data centers in Ireland are expected to consume almost 30% of the country's electricity by 2028. This projection comes amidst the operations of major tech companies like Google, Meta, Amazon, and TikTok, which currently oversee over 80 data centers in Ireland. Plans for expansions and new facilities are also underway.

ESA and UK Space Agency Team Up to Advance Satellite Communications in the UK

The European Space Agency (ESA) and the UK Space Agency have announced a collaborative effort aimed at expanding the utilization of satellite communications within the UK, focusing particularly on advancements in 5G and 6G technologies.

The initiative, highlighted in a joint statement, was launched following the contributory achievements of ESA's Harwell research center, home to the European Centre for Space Applications and Telecommunications (ECSAT).

ESA and the UK Space Agency are set to enhance ECSAT's pioneering 5G/6G facility, intensifying efforts in satellite communications and exploring broader applications of satellite services, which currently contribute approximately GBP 360 billion to the UK's GDP. The collaboration aims to establish a space quantum laboratory and develop activities related to in-orbit servicing, assembly, and manufacturing. These advancements are crucial for ensuring satellite lifecycle sustainability and introducing new services to benefit UK businesses and society.

Additionally, the UK Space Agency plans to launch five training schemes totaling GBP 2.1 million, aiming to address the skills gap in the rapidly expanding hightech sector.

Josef Aschbacher, Director-General at ESA, stated that the collaboration with the UK Space Agency aims to advance new initiatives in high-growth areas, improve services for all European citizens, and increase ESA's UK workforce to 200 people by 2030.

Competitive Telecom Sector Drives Canada's Connectivity in H1 2024

Based on Ookla's Speedtest Connectivity Report for the first half of 2024, there was no top rated mobile provider by Speedtest users in Canada, with Rogers, TELUS and Bell due to close scoring as per consumer sentiment.

In terms of market performance, the recent allocation of additional C-band spectrum in late 2023 is expected to improve performance for users as it gets widely deployed in 2024. Newfoundland and Labrador had the fastest median mobile download speed among provinces at 118.17 Mbps, while St. John's led among major cities at 219.92 Mbps.

Operators' Momentum

Bell Mobility and TELUS' network sharing agreement appears to be paying off, allowing them to outperform their rivals. According to Ookla's Speedtest Intelligence® data, there was no clear winner for the fastest 5G network in Canada, as both TELUS and Bell Mobility achieved similar performance levels.

Notably, TELUS was the fastest provider in Canada across all technologies combined, with a Speed Score of 125.82. Its median download speed was 137.37 Mbps, median upload speed was 14.07 Mbps, and latency peaked at 42 ms.

On the other hand, Bell excelled in providing the best gaming experience over 5G in Canada, achieving a 5G Game Score of 90.21 and a median game latency of 48 ms to key gaming server locations.

In terms of 5G Availability, Rogers was the market leader with 82.3% of its 5G users accessing its 5G network majority of the time.

Ookla noted that Vidéotron's acquisition of Freedom Mobile, along with the 5G spectrum it secured at auction, will boost competition in the market.

New Spectrum Licenses Allocated to Enhance Rural Connectivity Across Canada

The Honorable François-Philippe Champagne, Minister of Innovation, Science and Industry, announced that more Canadians will benefit from higherquality telecom services as a result of the auction of residual spectrum licenses that concluded on July 19.

"Competition drives more choices, lower prices, and better service," noted Minister Champagne.

In total, 56 lisences, mainly in rural and remote areas, were awarded to nine Canadian companies, with two thirds of the licences being awarded to small and regional providers. This includes five companies that are being awarded spectrum licences for the first time.

The results of the residual spectrum auction will improve rural and remote

connectivity and support the effective deployment of 5G technologies, in addition to encouraging competition and innovation.

Bell Mobility received the most number of licenses (18) worth \$3,081,896, covering 653,445 people. It is worth noting that Bell continues to spearhead the evolution of 5G technology in Canada by deploying 3800 MHz spectrum, delivering the nation's fastest mobile technology yet.

Netfox Communications Corporation also spent one of the highest in the recent auction, \$1,676,000 for 8 licenses, that will cover a population of 877,820.

Out of all licensees, the Chief and Council on behalf of the Norway House Cree Nation had the most population covered at 933,370, garnering 4 licences for \$593,000.

Liberian Telecom Authority's New Rules to Boost Fintech

The Liberian Telecommunications Authority (LTA) has introduced new regulations aimed at boosting fintech companies and enhancing competition in the mobile market.

Under the new rules, the LTA will manage numbering resources, such as short codes and USSD codes, previously controlled by large mobile network operators (MNOs). This change is intended to ensure fair distribution and prevent monopolization of these critical tools.

Fintech companies will benefit significantly, as they can now develop mobile financial products without MNO-imposed restrictions. The regulations also improve access to telecom networks for valueadded service (VAS) providers, fostering innovation in mobile money transfers, digital wallets, and other financial services.

Previously, MNOs could limit network access, restricting app reach and impact. The new regulations aim to create a more inclusive environment, enabling entrepreneurs to launch financial services confidently.

The changes have been wellreceived by stakeholders across the telecom and fintech sectors. A public consultation featured input from major players like Lonestar Cell MTN Mobile Money and Orange Mobile Money, as well as emerging fintech firms such as Ewallie, Kolacash, and TipMe.

While the new regulations promise a vibrant future for Liberia's mobile financial ecosystem, it remains to be seen how they will impact competition and innovation in the months and years ahead.





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The prestigious Global Connectivity Awards (GCAs) are also held alongside Capacity Europe where over 400+ global connectivity leaders unite to recognise and celebrate excellence and innovation.

Global Connectivity Awards are celebrating the best of the best of the best of the industry. It's the night to celebrate the innovation and the growth. Sam Evans | Delta Partners



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