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EXPANSION, MILESTONES AND AMBITION:
Recap on Telecom Review Group in 2024

The Digital Dilemma: Is Digital Transformation Advancing or Reversing Climate Change?

Redefining Connectivity with Cellular IoT

2024 in Review: Telecom and ICT's Radical, Rapid, Resilient Odyssey

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Turning Down the Heat: New Discovery Fuels the Future of Electronics

UVA researchers have confirmed a nanoscale heat flow principle, enabling cooler, faster, and more energy-efficient chips. This breakthrough in thermal management, supported by Intel and the Semiconductor Research Corporation, advances next-gen CMOS technology for sustainable, high-performance electronic devices.

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A USD 40 million-backed conceptual startup aims to transform human-computer interactions with AI voice systems that deliver natural, emotionally-engaging experiences, supported by advancements in real-time, interruption-management technology.

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Germany's new autonomous driving strategy leverages C-ITS technology and public transport to lead innovation in connected mobility solutions.

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frequency-based localization as a solution to improving accuracy and stability in real-world environments.

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Leading investors worldwide are pouring funds into AI companies, captivated by their transformative vision of an intelligent and interconnected future.

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Expansion, Milestones, and Ambition: Recap on Telecom Review Group in 2024

In 2024, Telecom Review Group conducted over 250 exclusive interviews, physically attended more than 30 global events, presented 47 awards, hosted seven virtual panels, and, for the 18th consecutive year, welcomed 600 delegates to the Telecom Review Leaders' Summit over two inspiring days.

Moreover, Telecom Review, which has long maintained a strong presence in the Middle East, Asia Pacific, Africa, and North America, now covers all the Americas, as of April, 2024. In addition, Telecom Review Europe launched in July, 2024, with plans for significant growth in the coming years.

Reflections from the Founder, Mr. Toni Eid

Reflecting on Telecom Review's performance in 2024, Telecom Review Founder, Mr. Toni Eid, stated, "For me, 2024 was a remarkable year of achievements, both for the telecom industry and for Telecom Review as a platform that fosters collaboration and innovation. As a company, we've grown in ways that reflect our commitment to supporting this dynamic sector and building meaningful relationships across the globe."

Highlighting Telecom Review's activities throughout the year, Eid noted that the year began on a high note at MWC Barcelona 2024, where he had

the pleasure of reconnecting with friends and colleagues from across the industry, while at the Comarch User Group event in Kraków, he spoke alongside participants from 40 countries. Telecom Review's presence at MWC Shanghai further solidified its ties with the Asian market.

Eid mentioned that a particularly proud moment emerged at BATIC 2024, where Telecom Review was honored by Telin with a token of appreciation for its enduring partnership. And at FutureNet Asia 2024 in Singapore, Telecom Review's Asia Pacific team returned as the media partner, reaffirming its leadership in the region's digital evolution.

The year was also filled with milestones, such as attending the Global NaaS Event by MEF for the 18th consecutive year and joining the insightful conversations at Innovate Asia 2024 in Bangkok. Eid added, "A standout was my chat with Vikram Sinha, President Director and CEO of IOH, which showed the power of personal engagement in driving innovation.

"From Doha's M360 to our 2024 Awards Gala Dinner and certification ceremony, each event celebrated industry progress and strengthened our connections with long-standing partners.

"Of course, the Telecom Review Leaders' Summit remains a personal highlight. This year, the enthusiasm from our partners to actively participate was truly exceptional. I was especially excited to witness the 'World's First 5G-Advanced Region Sets Sail' panel, a special addition that showcased the vast potential of 5G-Advanced technologies."

Looking ahead to 2025, Eid remarked that the industry is poised for incredible advancements, noting that, "At the 2024 ITU CxO meeting, which we've hosted for six consecutive years, I saw firsthand how the standards required for sustained growth are firmly in place. The discussions and breakthroughs surrounding 5G-Advanced are particularly thrilling—it's clear we're entering a transformative era."

18th Telecom Review Leaders' Summit

The 18th edition of the Telecom Review Leaders' Summit brought together telecom leaders and innovators to chart the future of connectivity, digital transformation, and AI-driven progress.

Industry leaders discussed cutting-edge infrastructure strategies, setting the stage for the event's exploration of technological advancements.

AI emerged as a central theme, with panels featuring experts from du, Huawei, Bayobab, Cisco, MYCOM OSI, Reailize, Comarch, TELUS, and Netcracker. Further discussions highlighted AI's role in transforming networks into highly autonomous systems.

Fintech innovation took the spotlight in a panel focusing on the evolution of digital financial services. Meanwhile, cybersecurity was tackled by experts, addressing the growing need for secure, resilient networks in an interconnected world.

The UAE's digital leadership was a focal point, with TDRA representatives delivering keynotes on the nation's ICT progress and providing an update on telecom innovation.

Inclusivity was celebrated during the Women in ICT panel, featuring voices from TELUS, PMP Strategy, du, Verizon Partner Solutions, Somos, the Polistratos Institute, e& Egypt, and TDRA UAE, highlighting the efforts being made in breaking gender barriers and fostering diversity in the telecom sector.

Collaboration across the industry was underscored by IOH's Vikram Sinha and bolstered by two Leaders' panels, which focused on innovation and strategic partnerships.

The region's transition into the 5G-A Mobile AI era featured contributions from the GSMA, TDRA UAE, du, e&, Vodafone Qatar, Vodafone Oman, Ooredoo Qatar, Huawei MECA, Ericsson MEA, and Nokia.

On the side-lines of the summit, Telecom Review hosted the prestigious ITU CxO meeting, extended gratitude to its sponsors and the ITU for their invaluable support through a certification ceremony, and celebrated industry excellence at the Telecom Review Excellence Awards.

2024 by Edition

Telecom Review Middle East

In 2024, Telecom Review Middle East solidified its reputation as the premier platform for ICT and technology insights in the region. Top discussions highlighted LEO satellites disrupting communication, 5G-A advancements, AI-driven operations, and new data center launches. With its comprehensive coverage and expert interviews, the flagship edition continues to set the benchmark for industry reporting in the Middle East.

Most Viewed Insights:

- LEO Satellites: Disrupting Communication Industry Innovation
- e& UAE: Bringing 5G-A Capabilities to Consumers and Enterprises
- Huawei: Bridging 5G Excellence and 5.5G Leadership in the AI Era

Telecom Review Asia

In 2024, Telecom Review Asia cemented its role as the leading platform for telecommunications and ICT insights across the Asia Pacific. Top discussions included the Philippines' ICT growth, digital inclusion efforts, and data privacy challenges, reflecting the country's digital transformation journey.

Other significant highlights covered advancements in 5G, artificial intelligence (AI), 6G development, and spectrum allocation, among others.

The platform continues to shine a light on groundbreaking projects, regulatory updates, and emerging technologies shaping the region's digital future.

Most Viewed Insights:

- The Growth of ICT and the Digital Evolution of the Philippines
- Data Privacy and Security Concerns in the Philippines Telecom Sector
- Advancing Digital Inclusion Efforts and ICT Development in the Philippines

Telecom Review Africa

In 2024, Telecom Review Africa stood out as a leading platform offering insights into ICT trends, cybersecurity, and transformative technologies shaping the African continent. Other key developments featured regulatory milestones, groundbreaking partnerships revolutionizing infrastructure, and emerging innovations. The platform continues to be a trusted resource for brands, governments, and organizations driving Africa's digital evolution.

Most Viewed Insights:

- 2024 Cybersecurity Outlook: Strengthening South Africa's Digital Shield
- Exploration des innovations technologiques et des initiatives durables
- Strengthening Cybersecurity in The Gambia: An Interview with Sanusi Drammeh

Telecom Review Americas

Rebranded in April, 2024, Telecom Review Americas broadened its reach across Canada, the USA, Latin America, and Asia, becoming a key B2B publication for ICT trends and telecom news. It bridges carrier and enterprise markets, offering global branding opportunities for industry leaders.

Most Viewed Insights:

- Infinera Insights: The Evolution of OTN Switching in Modern Networks
- Data Centers Face Challenges in the AI Era
- EXA Infrastructure: The Digital Bridge of North America and Europe

Telecom Review Arabia

In 2024, Telecom Review Arabia reinforced its position as a leading Arabic platform for ICT and telecom updates across the MEA region. Key topics included the advancement of submarine cables, 5.5G innovations, digital infrastructure challenges, satellite coverage expansion, and the transformative impact of ChatGPT. In addition to presenting exclusive articles and topics, Telecom Review Arabia also covers the industry's latest events.

Most Viewed Insights:

- الكابلات البحرية: خطوط التكنولوجيا الحديثة تحت الماء
- هواوي تمهد الطريق لاستخدام شبكات الجيل الخامس والنصف 5.5G وإطلاق عصر جديد للذكاء الاصطناعي في الشرق الأوسط
- الإمارات تحقق تقدماً ملحوظاً عبر انضمامها إلى مشروع إنشاء محطة الفضاء القمرية

Telecom Review Europe

Officially launched to the public in July, 2024, Telecom Review Europe has quickly become a prominent platform for industry insights and developments across the continent. The publication spotlights critical topics such as 5G evolution, data privacy, sovereign clouds, and data center advancements, drawing considerable attention from telecom professionals.

Most Viewed Insights:

- Telecom's 5G Evolution in Europe: Regulatory and Data Privacy Challenges
- Sovereign Clouds: Europe's Answer to Data Privacy Challenges
- Challenges and Advancements in Europe's Data Center Market

Telecom Opinions, ICT Trends: LinkedIn Poll Findings

In 2024, Telecom Review leveraged its LinkedIn platform to actively engage with its audience and capture industry insights. From July to December, 2024, we posed a range of questions across all editions to gauge awareness and evaluate the understanding of critical topics relevant to each region.

Middle East's Path to Tech Advancement

The Middle East's ICT and telecom landscape is evolving, but several barriers persist. Based on the LinkedIn poll results from Telecom Review Middle East, on the operators' side, revenue growth strategies hinge on customer excellence (60%), with network investments (26%) and competitive pricing (10%) also playing pivotal roles. A mere 4% believe a strong market position alone is sufficient.

Cloud adoption is apparently a mixed journey for companies in the region. Data security and compliance concerns dominate (52%), while legacy system integration and cost management challenges are equally significant at 24% each.

Africa's Telecom Challenges and Opportunities

Recent LinkedIn polls on Telecom Review Africa shed light on the critical factors shaping Africa's telecom and ICT sectors. Infrastructure development was identified by 72% of respondents as the top priority for improving telecom services, reflecting ongoing challenges in deployment costs, which were cited as the biggest hurdle to rural connectivity by 63%. Infrastructure gaps followed at 25%, while unreliable power and regulatory barriers tied at 6%.

ICT Evolution in the Americas

Recent LinkedIn polls on Telecom Review Americas highlight pivotal challenges and priorities in Latin America and North America's ICT and tech industries.

In Latin America, spectrum costs emerged as the primary challenge for operators, with 45% of respondents identifying it as a major barrier. Government bureaucracy (33%) and infrastructure deployment (22%) also weigh heavily on operators' progress. In North America, AI/cloud/data center partnerships dominate projections (46%), followed by public-private collaborations (36%) and connectivity upgrades (18%). These insights underscore the region's rapid digital evolution and strong presence of hyperscalers, operators, manufacturers, and other key ICT industry players.

Tech and Telecom Trends Shaping the Middle East

Recent LinkedIn polls on Telecom Review Arabia unveiled the key telecom and tech trends in the Middle East. A resounding 70% believe transitioning from telcos to techcos boosted profits, with 20% crediting this transition to improved service quality and just 10% noting minimal impact on customer experience. 5G network deployment is facing hurdles, with inadequate infrastructure identified by 66% as the main barrier to deployment, followed by a lack of capital (25%) and issues in digital culture (9%).

AI's Role in Advancing Network Connectivity and Key Sectors in APAC

In the Asia Pacific region, artificial intelligence (AI) is emerging as a game-changer in telecommunications and beyond. Based on Telecom Review Asia's LinkedIn polls, the majority of respondents (69%) believe AI will have the greatest impact on transforming network connectivity through network optimization, enhancing performance and efficiency. Predictive maintenance, crucial for preventing network downtime, garnered 19% of the votes, while 12% identified better network security as a key area of impact.

Beyond telecommunications, generative AI (GenAI) is revolutionizing various industries in APAC. Manufacturing leads the charge, with 38% of respondents highlighting its role in automating processes and improving operational precision. Education follows with 24%, as generative AI transforms learning experiences through personalized content and tools. Healthcare and retail each received 19% of the votes, showcasing the technology's potential in advancing patient care and reshaping consumer interactions.

Emerging Technologies Reshaping Smart Cities and Businesses in Europe

5G expansion is expected to have a transformative impact, with 58% anticipating improved experiences and services. Meanwhile, 21% see its potential to drive innovation and competition.

Telecom regulation in Europe remains pivotal, with competition policies and infrastructure sharing deemed equally crucial (36% each) for fostering innovation, followed by spectrum management (18%) and data privacy laws (10%). These insights underscore Europe's focus on balancing technology adoption, security, and regulatory frameworks to drive progress.

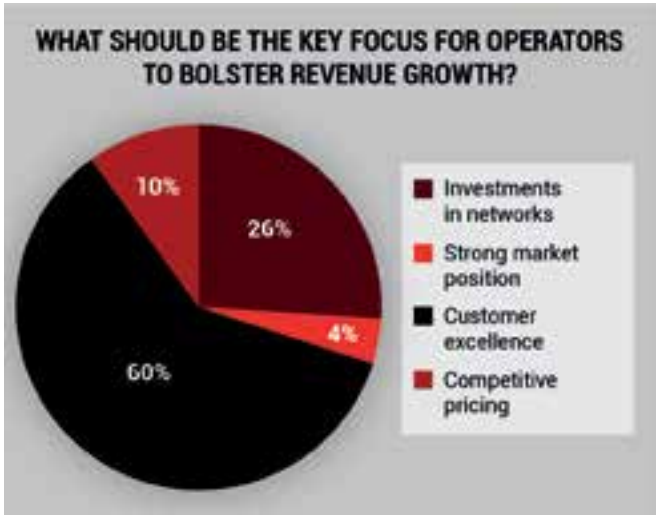
2024 was a noteworthy year for the global ICT sector. The Middle East embraced disruptive technologies, with LEO satellites, 5G-A advancements, AI-driven operations, and expanded data centers shaping the region's digital trajectory. In APAC, rapid strides in 5G, AI, and 6G development highlighted the region's technological leadership. Africa made significant progress with regulatory milestones, partnerships revolutionizing infrastructure, and innovative solutions addressing its unique challenges. Arabia saw notable progress in submarine cables, 5.5G innovations, and satellite coverage expansion amid challenges in digital infrastructure. In the Americas, the focus remained on the B2B carrier and enterprise markets, driving digital transformation across industries. Europe's 5G evolution stood out, with a focus on data privacy, sovereign clouds, and data center growth.

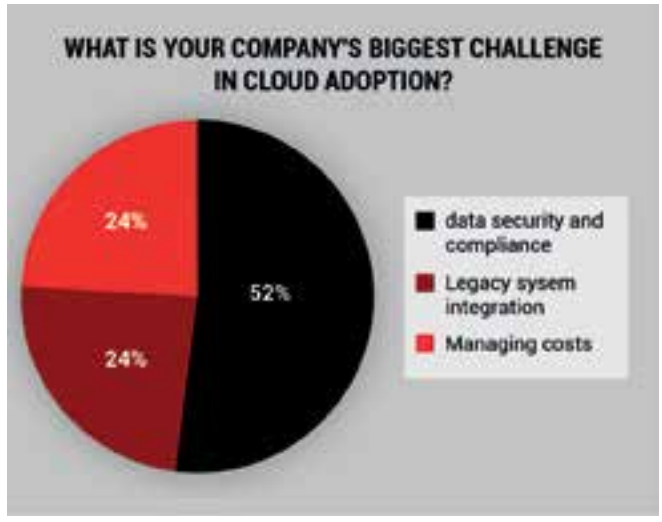
Teasing what's to come for Telecom Review in 2025, Eid concluded, "We promise you that 2025 will be a year of growth and expansion, especially given that we have plans to deepen our presence in Europe, ensuring that our platform continues to grow alongside the industry it serves.

"As I reflect on 2024, I'm grateful for the journey so far and energized for what lies ahead. Here's to continuing this incredible momentum into 2025 and beyond!" TR

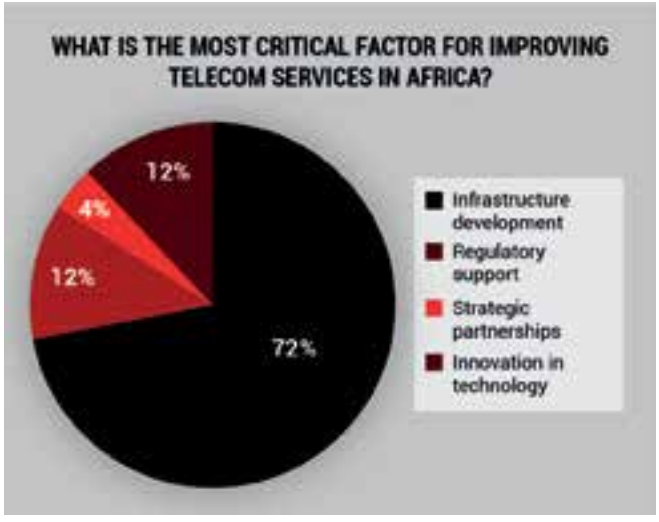
LinkedIn Polls Results

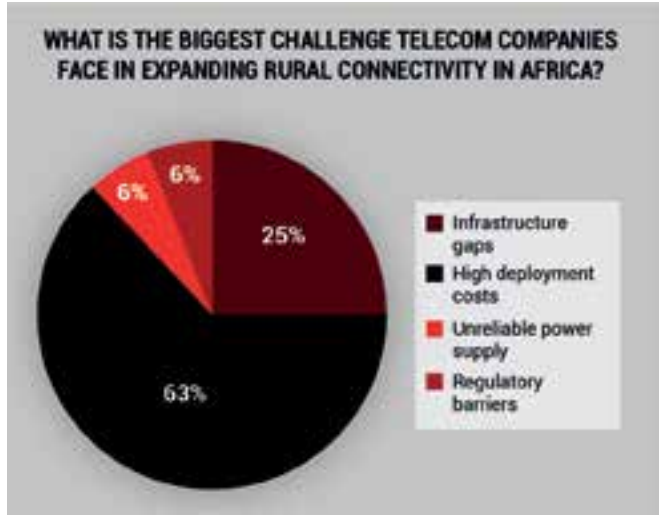
Middle East's Path to Tech Advancement



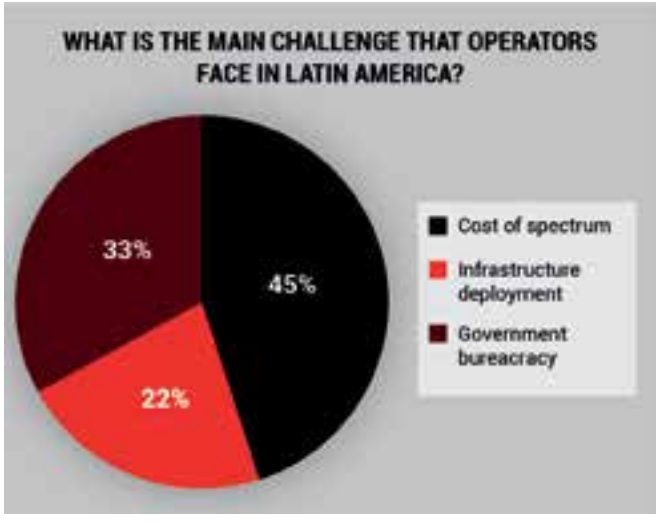


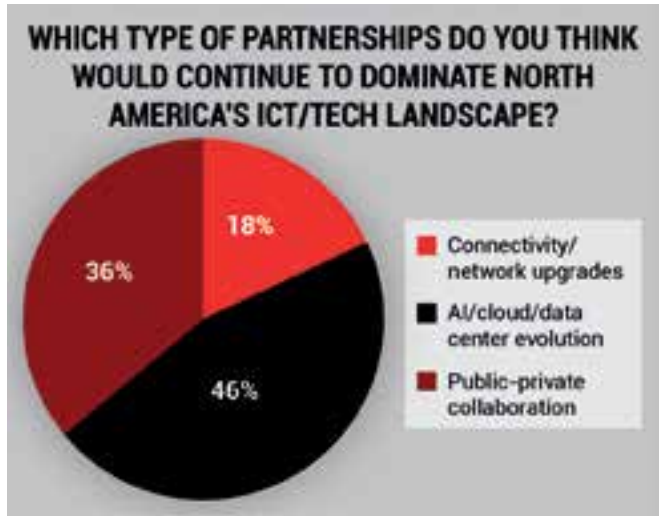
Africa's Telecom Challenges and Opportunities



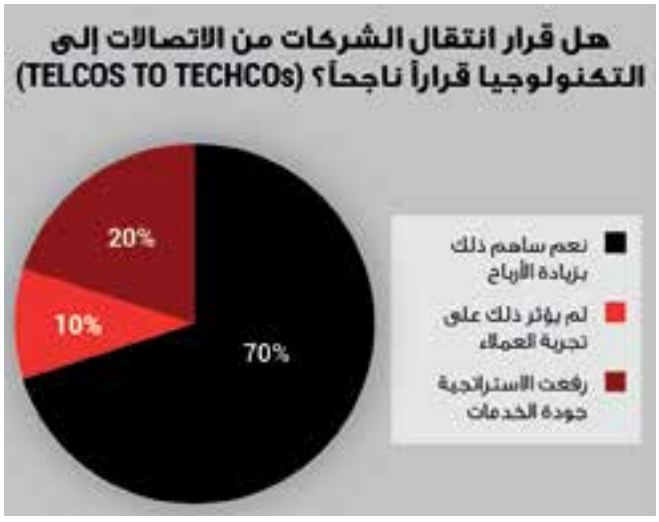


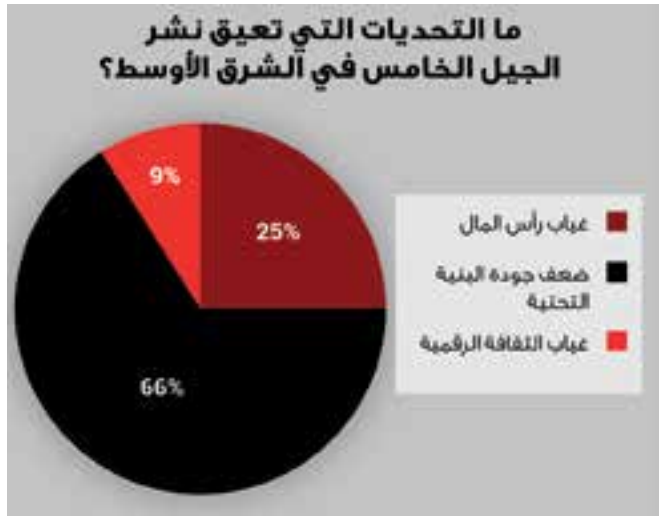
ICT Evolution in the Americas



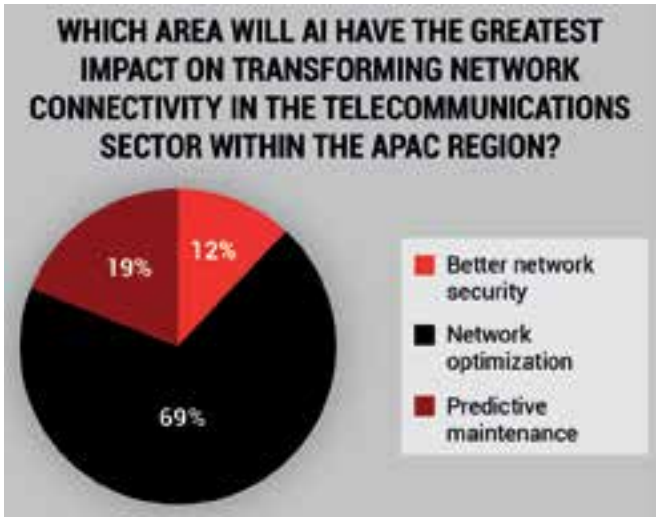


Tech and Telecom Trends Shaping the Middle East

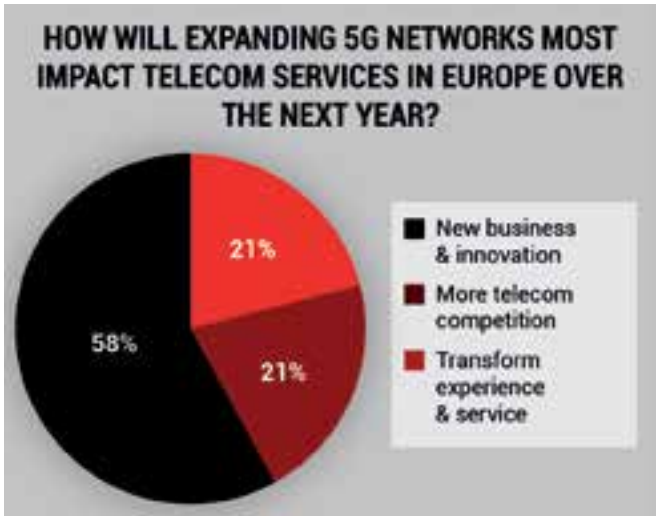


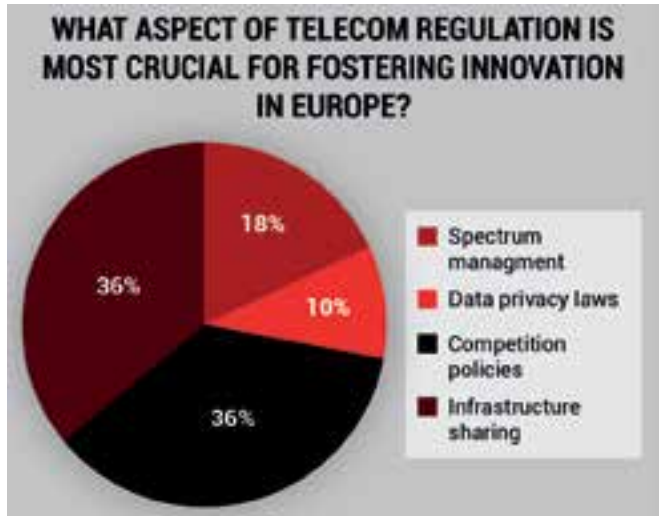


AI's Role in Advancing Network Connectivity and Key Sectors in APAC



Emerging Technologies and Regulations Reshaping Europe





2024 in Review: Telecom and ICT's Radical, Rapid, Resilient Odyssey

Just when industry experts thought technological evolution couldn't get any more radical, persistent, and capricious, 2024 delivered a year that encompassed it all; from volatile challenges and new opportunities to enhanced collaborative arenas and surprising breakthroughs.

2024 Connectivity Roundup

In terms of internet speed, Statista insights indicate that the United Arab Emirates (UAE) led the world in fixed broadband speeds in 2024, with an impressive average of 297.62 Mbps. Singapore ranked second at 297.57 Mbps, while Hong Kong rounded out the top three.

According to the GSMA, as of 2024, 68% of the global population, or 5.5 billion people, use the internet. The Commonwealth of Independent States (CIS) leads with 92% internet penetration, followed by Europe at 91%, while Africa has the lowest rate at 38%. Mobile internet adoption has grown, with 57% of the world's population using the internet. Mobile broadband now covers 96% of the global population, leaving 350 million people without coverage, mostly in rural and low-income areas. In 2024, 80% of mobile internet users accessed the internet via 4G or 5G smartphones, though many still rely on older devices in some regions.

5G-Advanced: The Inaugural Year

The inaugural year of 5G-Advanced marked a transformative leap toward a Mobile AI era, setting new standards for network performance and innovation. Central to this progress was the adoption of intelligent packet core technology, which enabled faster, smarter, and more efficient network operations. Key milestones included Nokia's achievement of the world's first immersive voice and audio call, Ooredoo Kuwait's breakthrough with mmWave technology, and du's remarkable 70% boost in uplink performance—the first-of-its-kind in the MEA region. With industry leaders such as Huawei, stc Group, and Ericsson pioneering advancements like automated RRP, 5G-Advanced is reshaping connectivity across the Middle East and beyond.

Collaboration and innovation have driven the rollout of 5G-Advanced, with du and Nokia accelerating its regional performance and Huawei and du achieving key milestones in network deployment. Insights from Telecom Review's virtual panel highlighted the dynamics of this next-gen technology, underlining its role in creating intelligent, high-capacity networks. As GCC countries aim for the highest global 5G penetration by 2030, 5G-Advanced is laying a robust foundation for a hyperconnected future, unlocking new possibilities for industries, consumers, and AI-driven applications.

5.5G Leads the Mobile AI Era

Similarly, the advent of 5.5G technology is propelling the Mobile AI era, where intelligence is poised to become a universal service accessible anytime, anywhere. At the Global MBB Forum 2024, Huawei's Corporate Senior Vice President, Li Peng, emphasized how AI is revolutionizing every facet of life and work, positioning the mobile industry as a key enabler. Huawei reinforced its leadership by launching 5G-AA solutions and AI-driven F5.5G all-optical networks, while its 5.5G microwave technology achieved breakthroughs in reliability and deployment flexibility. Ooredoo Oman and Vodafone Qatar showcased impressive milestones, with 5.5G achieving unprecedented network speeds of over 10 Gbps, underscoring the transformative potential of this technology.

5.5G is also driving the convergence of AI and mobile networks, creating new growth opportunities and reshaping industries. Telecom leaders like Zain KSA and Nokia are pioneering advancements in 5G Cloud RAN solutions, while China Unicom Guangdong is lever aging 5.5G, AI, and U-Joy Cities 3.0 for smart innovation. As highlighted at the Global MBBF 2024, 5.5G's industrial dividends extend beyond connectivity, enabling ubiquitous AI and intelligent RAN solutions and paving the way for a future of hyper-intelligent networks that integrate seamlessly across scenarios and industries.

AI: Regional Regulation, Acts, and Advancement

- **Europe**

Recent advancements in the EU's artificial intelligence (AI) scene highlight its dedication to leading in AI regulation. The EU AI Act, which took effect in August, 2024, is a thorough legislative framework designed to oversee AI systems across member states. One standout feature of the EU AI Act is its emphasis on fostering public trust by ensuring AI systems operate ethically and comply with existing EU laws, including the General Data Protection Regulation (GDPR). Poland leads in implementing the EU AI Act, with a dedicated national law and a focus on cybersecurity and digital innovation under its EU Council presidency, as emphasized by Dr. Lidia Stępińska-Ustasiak, President and Co-Founder of Polistratos Institute.

Europe has also drafted the world's first global AI agreement, a treaty that aims to unify global efforts regarding ethical AI usage, setting the stage for broader multilateral collaboration. Furthermore, the EU's Next Generation Internet (NGI) initiative will focus on creating a human-centered internet.

- **Asia**

In Asia, Japanese Prime Minister, Fumio Kishida, has emerged as a key advocate for global AI regulation. His government is spearheading efforts to create a cohesive international framework for the responsible use of generative AI (GenAI) technologies, highlighting Japan's commitment to addressing the ethical and societal challenges posed by AI on a global scale.

Meanwhile, in an exclusive interview with Telecom Review, Lintasarta CEO, Bayu Hanantasena, emphasized the need for industry-specific policies, stating, "There are general principles that many countries have agreed upon for responsible AI use, but specific regulations may differ based on cultural, religious, and social norms."

Additionally, the International Telecommunication Union (ITU) has made AI a cornerstone of its agenda for the upcoming World Telecommunication Standardization Assembly (WTSA-24). Similarly, Dr. Bilel Jamoussi, Deputy Director, TSB, noted, "One of our key objectives is to appoint new leadership teams for our study groups. These groups will develop standards in critical areas such as AI, the metaverse, digital identity, and digital infrastructure." Singapore is also making strides, with Singtel collaborating with the GSMA

and other global telcos to establish a maturity roadmap for responsible AI implementation, positioning the region as a hub for AI governance.

- **Americas**

In the Americas, Chile, Brazil, and Uruguay are leading the charge in Latin America's AI adoption. Meanwhile, North America has witnessed groundbreaking bilateral cooperation between the UK and Canada, whereby a Memorandum of Understanding (MoU) was signed in Ottawa. This agreement underscores a shared commitment to advancing AI capabilities and fostering collaborative research across borders.

Seeing Double: Digital Twins

Digital twin technology (DTT) is reshaping industries by enabling predictive insights and operational efficiency through virtual replicas of physical systems. In the Middle East, the UAE is leveraging 5G and DTT to accelerate smart city developments and establish the metaverse. Saudi Arabia's ambitious NEOM project has integrated digital twins with 5G to drive AI-powered command centers, virtual cityscapes, and sustainable urban living. Enhanced mobile broadband (eMBB) is central to these efforts, catering to data-intensive applications across consumer and enterprise digital twins.

Asia is witnessing significant strides in DTT adoption. AIS Thailand and Huawei are advancing intelligent wireless innovation, while NTT has announced the launch of NTT AI-CIX, shifting from linking digital twins within individual businesses to applying chained AI across industries. This approach is expected to accelerate inter-industry business development. Meanwhile, DOCOMO and NTT Com. are exploring the capabilities of DOCOMO's new multi-platform cloud-rendering technology for seamless digital twin integration. In Malaysia, CelcomDigi's Innovation Center is collaborating with ZTE to implement cutting-edge solutions, such as the Digital Twin, Natural Navigated 5G Automated Guided Vehicle (AGV), and Smart Helmet, to reinvent smart manufacturing and warehousing.

In the telecommunications sector, Huawei is leveraging digital twins alongside AI foundation models to automate fault detection and improve diagnostics through its Premium Broadband solution. In a topical Telecom Review webinar, Nokia's Abhay Savargaonkar outlined how Nokia is using DTT for intent-based network management, enabling real-time threat prediction, software upgrades, and virtual network testing to simplify complex operations.

In aerospace, advancements such as 3D printing, combined with digital twins, are optimizing satellite design, paving the way for next-generation satellite solutions, and enhancing overall technological innovation.

D2D Connectivity

The demand for direct-to-device (D2D) connectivity in 2024 was driven by the increasing desire for seamless broadband, voice, and data services. Leveraging advancements in 5G and non-terrestrial networks (NTN), D2D eliminates the need for costly ground infrastructure or specialized user terminals, enabling low-latency communication directly to devices. Key players like Viasat and BSNL have demonstrated the potential of D2D through India's first satellite-enabled, direct-to-device service, while Skylo's non-terrestrial network is powering Verizon's commercial satellite messaging services, expanding connectivity to remote areas.

The integration of low Earth orbit (LEO) and geostationary (GEO) satellites is further advancing D2D capabilities, offering affordable and efficient solutions for underserved regions. Netcracker's Digital Satellite Solution is capitalizing on this trend by providing scalable tools for satellite network operations, while AALTO's Zephyr aims to revolutionize global connectivity. As testing of LEO satellite technology intensifies, D2D promises to redefine communication standards, bridging the digital divide and setting the stage for ubiquitous 5G NTN integration.

DAS: A Gold-Medal Winner

Distributed antenna systems (DAS) have been instrumental in ensuring seamless connectivity during major global events in 2024. At the Paris 2024 Olympic and Paralympic Games, Orange deployed extensive DAS infrastructure to manage immense data traffic generated by spectators, athletes, and media, ensuring uninterrupted communication throughout the venues. Similarly, during the America's Cup, advanced DAS solutions provided reliable connectivity for live broadcasts and real-time data analytics, enhancing both operational efficiency and spectator experience. Ericsson's Enterprise 5G strategy also highlights the growing demand for DAS in dense environments, with Manish Tiwari, Ericsson's Head of Private Cellular Networks, Enterprise Wireless Solutions, emphasizing that traditional systems like Wi-Fi often fall short of the technical demands required at such high-profile events.

The FIFA World Cup 2024 further benefited from significant DAS deployments. Levi's Stadium introduced a new 5G DAS, providing robust wireless coverage for fans to share their experiences and access digital services without interruption. Additionally, the Asia-Pacific tower and small cell market saw a rise in small cells and DAS adoption, which now account for 37.8% of deployments. This trend reflects the industry's adaptability to technological demands, particularly in dense urban and event-focused areas.

DAS advancements enable higher reliability, capacity, and low-latency connectivity, meeting enterprises' increasing automation needs and ensuring similar global events are technologically seamless. Contrastingly, through a strategic collaboration with Nokia and AGC Glass Europe, Zain KSA is currently testing 'WAVE by AGC' transparent glass technology in Jeddah to enhance the delivery of indoor 5G coverage in real-world conditions, mitigating the need for intrusive equipment, such as traditional DAS and smart micro-outdoor solutions.

Unexpected Industry Impacts

In 2024, the ICT industry faced a series of unanticipated disruptions,

highlighting vulnerabilities in infrastructure, security, and policy. The CrowdStrike-Microsoft outage exposed the overreliance on cloud services, emphasizing the critical need for robust cybersecurity frameworks. This global internet outage halted operations across industries, underscoring the fragility of interconnected networks. Geopolitical tensions in the Asia Pacific disrupted telecom infrastructure projects, while China's telecom strategy was thrust into the spotlight amid supply chain challenges. In Bangladesh, violent student protests over a new jobs quota system led to an internet blackout, showcasing how social unrest can directly impact digital connectivity. Similarly, the Sahel region grappled with political instability, which threatened telecom infrastructure and investment, catalyzing the need for innovative connectivity solutions in remote areas.

Security threats also surged, with GPS spoofing emerging as a risk for airline systems and A2P SMS fraud targeting telecom networks in Burkina Faso, Libya, and Tanzania. In Ethiopia's conflict-affected Tigray region, Safaricom began 4G network expansion amidst extensive infrastructure damage resulting from over a year of conflict. Sudan's telecommunications sector faced similar struggles, with targeted attacks on facilities and satellite internet restrictions.

On the regulatory front, the UAE approved an AI policy, cementing its position as a tech leader, while TDRA and MECA stakeholders advanced ICT policies and cybersecurity standards. Globally, ITU members reached agreements on AI and metaverse standards, even as countries like the Philippines faced policy hurdles in broadband expansion. Facilitating the discourse on ICT standardization, business, and regulatory perspectives, this year, Telecom Review hosted the ITU CxO meeting for the sixth consecutive year.

6G Stepping-Stones

A new era of advanced connectivity is taking shape: 35 cities and regions have collaborated to launch 5G-A networks, setting the stage for future innovations. At the forefront of these developments, the UAE has emerged as a key player, with the TDRA leading efforts to secure spectrum allocation for 6G. During the 18th edition of the Telecom Review Leaders' Summit, Eng. Tariq Al Awadhi, Executive Director of Spectrum Affairs at the TDRA, emphasized the importance of effective spectrum management, noting that it is the backbone of the nation's 6G and ICT future. The TDRA's commitment to pioneering 6G services before 2030 is a testament to the UAE's ambition to lead in cutting-edge technologies.

The next frontier will build on the successes of 5G, and companies like e& UAE are already enhancing their 5G-A capabilities, aiming to offer robust solutions to both consumers and enterprises. Similarly, Detecon's Konstantinos Pentikousis highlighted that frequency bands such as cm-wave and sub-terahertz are crucial for complementing 5G, and are being explored due to their potential in facilitating the establishment of 6G networks, which will drastically improve data rates and latency. In parallel, AIS is leading the charge towards a 6G-ready future, focusing on next-generation technologies, and laying the groundwork for seamless connectivity. On the global stage, the US and Sweden have united in their efforts to foster 6G innovation, collaborating to explore and develop cutting-edge solutions that will define the next generation of mobile networks, further accelerating the global transition to 6G and beyond.

The shift to 6G will also revolutionize satellite communications. Innovations in low Earth orbit (LEO) satellites are enhancing connectivity, with companies like du shaping the policies and infrastructure necessary to support 6G technologies. Likewise, NTT DOCOMO and its partners in Japan have conducted the country's first AI-powered 6G indoor test, bringing artificial intelligence into the realm of connectivity to optimize performance and network management.

In the corporate arena, global collaborations are making strides toward 6G. In South Korea, KT and LG have partnered to drive developments in full-duplex technology, while China has already launched its first 6G test network, utilizing 4G infrastructure as a stepping stone. This marks the beginning of a more integrated and efficient 6G ecosystem. Meanwhile, in an exclusive interview with Telecom Review, Ericsson's Börje Ekholm noted that the, "architecture of 5G is cloud-based, very akin to what we anticipate for 6G," as both technologies share fundamental structural similarities.

The sustainability aspect of 6G is another significant factor. Nokia is spearheading the SUSTAIN-6G initiative, which focuses on ensuring that 6G technologies are not only advanced but also environmentally responsible. As Huawei's Dr. Tong Wen pointed out, real innovation will be key to reshaping the mobile industry, with 6G offering the potential for groundbreaking improvements in efficiency, sustainability, and connectivity.

Trends to Watch in 2025

As we move into 2025, several key ICT trends are poised to redefine the technological landscape. Ubiquitous networks will expand connectivity, supporting the intelligent world and driving industrial intelligence across sectors.

The convergence of IT and OT systems will continue to grow, though this integration expands cyberattack surfaces, highlighting the critical need for enhanced cybersecurity, particularly for manufacturers. Streaming telemetry will provide near-real-time insights into network performance, enabling proactive management and optimization.

Additionally, the rise of AICT companies, which combine artificial intelligence with communication technologies, will fuel new innovations. The advent of synchronous digital hierarchy (SDH) will streamline high-speed data transmission, while commercialized 5G private line scenarios will offer secure, dedicated network solutions for enterprises.

These trends signal a dynamic and interconnected future where innovation and security are inextricably linked. TR

Chra Hussain,
Chief Commercial Officer, Asiacell

Asiacell Excels in Digital Customer Experience with Transformative AI Solution

Chra Hussain, Chief Commercial Officer at Asiacell, is at the forefront of driving digital transformation in Iraq's telecom industry. With her visionary leadership and deep understanding of customer needs, she is playing a pivotal role in shaping Asiacell's commitment to innovation and excellence.

Under her guidance, Asiacell introduced 'LAILA,' the first AI-powered automated responder on the Iraqi telecom market. LAILA exemplifies Asiacell's mission to deliver customer-centric solutions through cutting-edge technology. This pioneering solution is transforming customer engagement, enhancing user experiences, and positioning Asiacell as a leader in AI-driven innovation.

In an exclusive interview with Telecom Review, Hussain delved into the motivation behind the innovative customer solution.

Asiacell operates in an emerging market with diverse geographies, including rural areas where accessing reliable customer support is challenging. From a commercial perspective, what prompted you to introduce LAILA at this stage, and how does it address the unique needs of Iraqi consumers?

At Asiacell, we view technology as an enabler that bridges gaps, rather than widening them. Iraq's 45-million-strong population is geographically diverse, with nearly 30% residing in rural areas. LAILA was introduced as a mobile-first, AI-driven solution designed to meet the unique needs of our market, ensuring customers receive support quickly and efficiently, no matter where they are. Whether it's resolving billing issues or recommending the best data plans, LAILA ensures every customer—regardless of location—receives the support they need in real time.

Unlike traditional chatbots, LAILA integrates directly with Asiacell's network data to deliver context-specific, accurate, and personalized responses. How does this real-time integration translate into a tangible competitive advantage?

LAILA's real-time integration with our network allows her to access critical customer data like account details, usage history, and location. Enriched with over 500,000 Q&A interactions drawn from two years of historical customer data, LAILA has developed a deep understanding of user needs and behavior thanks to Asiacell's local team, which developed this AI chatbot through a tremendous effort.

Utilizing high-end, rich prompt engineering, this capability ensures context-aware responses, reducing the back-and-forth typically associated with chatbot interactions. For example, if a customer inquires about roaming options before traveling, LAILA provides tailored recommendations based on their current plan and destination. This competitive edge has resulted in measurable improvements in customer satisfaction and loyalty.

In relation to fostering loyalty, reducing churn, and improving satisfaction among Asiacell's 18.6 million customers, how does LAILA's conversational approach enhance the customer journey?

LAILA breaks away from rigid, menu-driven chatbots by enabling natural, intuitive conversations. This shift creates a more human-like experience, making interactions faster and more satisfying. By addressing queries instantly and accurately, LAILA reduces customer effort, which directly impacts loyalty. Many customers have shared positive feedback regarding how LAILA makes their journey effortless and enjoyable. This approach has helped us strengthen relationships and retain customers in an increasingly competitive market.

Can you share examples or metrics that demonstrate LAILA's impact on operational efficiency, response time, and overall cost savings?

Since LAILA's launch, bot-handled interactions surged from 4-6% to about 40-47%, substantially reducing agent workloads and allowing teams to focus on complex issues. Response times improved and customers praised its 24/7 availability, raising satisfaction scores. Automating routine inquiries has not only cut operational costs but also fostered agent engagement by eliminating repetitive tasks. LAILA's data-driven, personalized responses have created a more efficient, cost-

effective, and rewarding support environment that enhances both customer and employee experiences. LAILA marks a symbol of progress in Asiacell's customer care journey.

How does Asiacell ensure that LAILA operates securely, protects customer data, and maintains user trust?
Security is at the core of LAILA's design. We use advanced encryption, one-time password (OTP) verification, and strict data privacy measures to protect customer information. Furthermore, LAILA's responses filter harmful content using Azure's Application Programming Interfaces (APIs). Regular audits and continuous learning ensure LAILA adapts to evolving threats, maintaining the trust our customers place in us. This commitment to security reassures users that their data is safe, even when engaging with advanced AI systems.

How has LAILA reinforced Asiacell's image as a leader in digital customer experience on both regional and global stages?
LAILA's transformative approach—merging advanced AI with real-time network integration—showcases Asiacell's pioneering spirit. By removing barriers to reliable support across Iraq's diverse landscapes, LAILA elevates the customer experience and fosters loyalty among millions, even in underserved regions. This seamless, humanized interaction model has positioned Asiacell as a digital frontrunner regionally and globally, influencing industry standards and inspiring others to innovate. As a result, Asiacell's brand now reflects true leadership in delivering accessible, secure, and personalized telecom services to all.

With 5G and IoT services on the horizon, how is LAILA's architecture preparing Asiacell for future market opportunities?
LAILA's cloud-based, modular architecture is designed to evolve with emerging technologies. Whether it be integrating 5G or supporting IoT solutions, she's ready to adapt. This scalability ensures we can meet growing customer demands while maintaining the same high performance and reliability standards. Our vision is to keep LAILA at the forefront of AI innovation, empowering customers to explore new possibilities as technology advances.

How is LAILA setting new benchmarks in customer expectation and the broader telecom ecosystem?
LAILA represents a transformative force in telecom. By combining conversational AI with real-time data integration, she has raised the bar in terms of what customers expect from digital support. Her success challenges the industry to innovate further, fostering a competitive environment that ultimately benefits consumers. We're proud to lead this wave of change and look forward to shaping the future of customer engagement.

LAILA is more than just a technological milestone for us; it's a reflection of our commitment to truly understanding the needs of every Asiacell customer. Growing up in Iraq, I've seen firsthand how access to reliable communication can change lives, and with LAILA, we're bringing that possibility closer to millions, no matter where they are.

LAILA's success represents a transformative milestone for Asiacell and the Iraqi telecom market. By prioritizing innovation and placing customers at the core of its strategy, Asiacell has set new standards for excellence, inspiring advancements across the industry. LAILA is more than just a technological achievement; she symbolizes the potential of AI in revolutionizing customer experiences, streamlining operations, and creating stronger connections.

Asiacell's success with LAILA goes beyond telecom, setting a benchmark for the broader Iraqi private sector, showcasing the possibilities of AI-driven solutions, and inspiring businesses to explore digital transformation. As we look ahead, LAILA's journey is only beginning. Her continuous evolution will not only solidify Asiacell's leadership but also pave the way for groundbreaking possibilities in the rapidly advancing world of telecom innovation. TR

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Saleem Alblooshi, CTO, du

The Power of AI and 5G-Advanced: How du is Building the UAE's Next-Gen Infrastructure

As a co-host of the 2024 ITU CxO meeting, Telecom Review conducted an exclusive interview with du CTO, Saleem Alblooshi, a key figure driving innovation in 5G, AI, and next-generation digital infrastructure in the UAE.

Alblooshi explored how du is shaping the digital landscape in the UAE and beyond, and discussed the challenges and opportunities in monetizing 5G infrastructure, the role of AI in advancing network efficiency and sustainability, and du's pivotal participation in global initiatives.

du has been instrumental in driving 5G and AI innovation. How do you see 5G and AI-enabled use cases shaping the digital transformation journey towards 6G in the UAE and beyond?

From a strategic perspective, du's core pillars focus on network modernization, enhancing customer experience excellence, driving network efficiency and quality, ensuring security, and promoting sustainability.

These five strategic pillars are designed to maximize value creation, position du as an industry leader, and strengthen our country's leadership on a global scale. AI serves as a critical enabler across all these areas. By leveraging AI frameworks and capabilities, we optimize infrastructure deployment, enabling faster, more cost-effective, and quality-driven network rollouts.

AI is a fundamental element driving our network advancement and customer experience transformation. It helps us manage customer touchpoints efficiently using AI and generative AI (GenAI) capabilities, while also improving overall operational efficiency and reducing both the cost per gigabyte and infrastructure deployment expenses.

AI also plays a vital role in our security frameworks. Security is fundamental to our strategy, ensuring confidentiality, integrity, and customer privacy.

From a sustainability perspective, we are using AI to drive the efficient utilization of power in our infrastructure and correlating power consumption with traffic trends.

Given du's strategic focus on infrastructure expansion, such as data centers and fiber footprint, what are the main challenges and opportunities in aligning these efforts with national initiatives?

From infrastructure rollout to modernization, du is driving the UAE's leadership vision to position the country as number one in global infrastructure. Our efforts are aligned with this national agenda to achieve and sustain leadership in this domain.

In terms of 5G, we have deployed the latest infrastructure and are now advancing to 5G-Advanced nationwide. With our 5G network already achieving 99% coverage, our current focus is on expanding and enhancing this infrastructure to deliver 5G-Advanced capabilities across the UAE. Simultaneously, we are accelerating the rollout of fiber infrastructure.

Fiber is a critical enabler for advancing capabilities across fixed networks, mobile infrastructure, and data center connectivity. Whether it be building a nationwide fiber backbone or addressing last-mile and international connectivity, we are prioritizing accelerated deployment and investment in fiber optics.

Recognizing the rapid growth in AI, digitalization, and the increasing demand for data centers, we are making significant investments to build state-of-the-art data centers across multiple regions in the UAE. These data centers are equipped with the latest technologies that support the country's sustainability agenda while delivering exceptional customer experiences.

The UAE is globally recognized for its advanced infrastructure, particularly in telecom, where we are ranked number one in the world. At du, we remain committed to maintaining and strengthening this leadership position through continuous innovation, investment, and excellence.

As a co-host of the ITU CxO meeting, how does du plan to leverage this collaboration to influence global telecom policies and advance regional digital inclusion efforts? What is du's strategic direction for 2025?

Active participation in international standards development and governance of infrastructure is key in providing advanced services to our customers.

Alignment with all key stakeholders—regulators, operators, and technology manufacturers—is the foundation for success in the telecom industry. At du, we recognize the importance of collaboration and are actively engaging with leading global standardization bodies, including the ITU, 3GPP, GSMA, and several other organizations.

A prime example of our leadership in this space is our contribution to the development of 6G standards. Working alongside our regulator, technology vendors, and other operators as part of the 6G Task Force, du played an instrumental role in defining the UAE's vision for 6G. This collaboration led to the publication of the first whitepaper outlining the national agenda for 6G deployment.

Thus, it is fundamental to participate and encourage engagement in such international initiatives. The value it brings is the differentiator between the telecom industry and the many other industries that work without standards or specific features and capabilities that are not interoperable.

With du's recent advancements in 5G monetization and enterprise solutions, what emerging technologies or partnerships do you foresee as critical to sustaining this momentum in the Middle East region?

As highlighted, we have developed the latest and most advanced infrastructure in the UAE, and today, we are leading the deployment of 5G-Advanced, covering entire cities with its cutting-edge capabilities. This progress has been made possible thanks to the support of our regulator, TDRA, particularly in the allocation of spectrum, which has accelerated the advancement of our infrastructure rollout.

In order to ensure the proper monetization of this infrastructure, we have to work and collaborate with several ecosystem players and develop use cases that ensure the utilization of these capabilities, creating the best value for the people in the country; whether it be for the residents, for trade, or for social communication.

There's no individual entity or vertical that can drive this ecosystem. Therefore, we are partnering with our vendor ecosystem, including Nokia, Huawei, Ericsson, Microsoft, Oracle, and others. We are also partnering with international regulatory and standardization entities, such as the UAE's regulator (TDRA), the ITU, 3GPP, ETSI, and other organizations that develop standards.

On the other hand, we are also engaging with our customers to identify which use cases are creating value for them, in order to ensure that we build end-to-end technology that maximizes value for our customers. TR

Danial Mausoof, VP Technology and Solutions, Nokia MEA

Shaping the Future of Mobile Networks: Insights from Nokia MEA

In an exclusive interview with Telecom Review, Danial Mausoof, VP Technology and Solutions at Nokia MEA, explored MEA's evolving mobile network landscape. From the projected growth of 5G to the transformative power of network APIs and AI-driven solutions, Mausoof highlighted how Nokia is driving innovation and meeting the dynamic needs of telecom operators and industry verticals across the Middle East and Africa.

Nokia has projected massive 5G growth in the MEA region. How will this impact the technology deployment within the region?
5G has experienced significant growth in this part of the world. In the UAE, operators are leading in terms of both performance and coverage and we see this adoption continuing as a result of Fixed Wireless Access.

Moving forward, our focus on 5G will encompass monetizing various elements of the network, with Fixed Wireless Access being just one aspect. We also foresee substantial growth, driven by advancements in artificial intelligence, immersive video, spatial computing, and other emerging technologies, which will similarly shape the region.

Nokia remains committed to investing in the region, not only through our portfolio but also through strengthening the necessary teams so that they can sufficiently deploy and support 5G infrastructure across the UAE and the broader region.

Nokia has been advocating for network APIs. How will this integration transform a telecom operator's business operations, particularly in the region?
Network APIs represent the next frontier for operators in terms of network monetization, providing exciting opportunities for new revenue streams. By leveraging these APIs, operators can explore verticals with enterprise businesses to discover how they can utilize Nokia's Digital Monetization solution, also known as Network as Code. This approach enables the development of innovative strategies that can be used to monetize networks collaboratively as an industry, fostering greater collaboration and maximizing the value of connected ecosystems.

What role will AI play in mobile networks moving forward? Can you give examples of AI-based solutions that Nokia is providing?
The use of AI and machine learning (ML) is not new to Nokia; we have been utilizing anomaly detection for both structured and unstructured data for some time. As AI has advanced over the past few years, we've expanded its application across various AI models. For example, we have integrated AI with radio networks to optimize key parameters, enhancing energy efficiency by shutting down cells based on traffic patterns, which can deliver up to 15-20% energy savings for operators—a critical factor in sustainable network management.

Additionally, AI plays a crucial role in managing queries through Nokia's AI Digital Assistant, providing predictive behavior analytics and streamlining network operations. Our MantaRay SON solution leverages AI to orchestrate network behavior, offering cognitive management of network performance through predictive analytics and actionable insights. A notable example demonstrating this is our success in Saudi Arabia during Hajj, where we handled 10,000 actions per hour—an achievement made possible through cognitive, AI-driven orchestration far beyond what is humanly achievable.

How will Nokia MEA's mobile network solutions cater to the demands of different industry verticals moving forward?
Nokia continues to be a global leader in the telecommunications industry, excelling both in performance and providing comprehensive solutions to MNOs. Our focus extends to orchestration, software, and transport, including microwave solutions. Additionally, we are dedicated to serving our non-CSP customers, specifically those within the enterprise verticals.

We believe we have the right portfolio to meet the unique needs of these verticals through a consultative selling approach. By offering customized, bespoke solutions that cater to diverse use cases, we ensure the right elements for connectivity, while delivering substantial end-user benefits in terms of cost, quality, and performance.

We actively collaborate not only with MNOs but also directly with enterprises in enabling these use cases across multiple verticals; primarily utilities, public safety, transport, and oil and gas. We are proud to be partners with some of the largest customers in the region and will continue to strengthen these relationships as part of our strategy for 2025 and 2026. TR

Eng. Tariq Al Awadhi, Executive Director, Spectrum Affairs, TDRA

Spectrum Management: The Backbone of UAE's 6G and ICT Future

During the 18th edition of the Telecom Review Leaders' Summit, Telecom Review conducted an exclusive interview with Eng. Tariq Al Awadhi, Executive Director, Spectrum Affairs, TDRA. He discussed the importance of the new spectrum allocation for 6G development in the country and the TDRA's commitment to ensuring effective spectrum management.

How will the new 600 MHz and 6 GHz spectrum allocations impact 6G development in the UAE?

The allocation of the 600 MHz and 6 GHz bands is set to play a pivotal role in advancing 6G development in the UAE. These bands are crucial for ensuring sufficient bandwidth for IMT-2030 applications. Within the ITU framework, study groups and working parties under the ITU-R sector are diligently working to establish specifications and standards that will pave the way for emerging technologies like 6G.

One of the key requirements for 6G deployment is securing significant bandwidth in the midband spectrum. Currently, we have access to only 100-200 MHz in this range, which is insufficient to meet future requirements. Research indicates that either 200 MHz of continuous spectrum or 400 MHz of total spectrum is essential, both of which are attainable within the 6 GHz frequency band.

Moreover, the WRC-27 agenda includes discussions on additional spectrum allocations for IMT applications in mobile services, further supporting the development of 6G infrastructure in the UAE.

How will the TDRA ensure effective spectrum management to drive ICT development in the UAE?

Spectrum availability is a cornerstone for launching new services. For any operator planning to begin operations, access to interference-free spectrum is the top priority. Adequate spectrum ensures smooth infrastructure deployment and reliable service delivery without disruptions.

As the UAE's regulatory authority, the TDRA is committed to ensuring the availability of interference-free spectrum. This is not an easy task, as frequencies are shared among multiple services and must align with cross-border usage to avoid interference. Achieving this requires collaboration with existing users and neighboring countries, as well as the implementation of detailed regulations and specifications.

The TDRA has already established a comprehensive set of policies to maximize the best spectrum utilization. These efforts have enabled the UAE to use nearly all IMT bands effectively, thanks to early planning and strict operator and stakeholder compliance.

This proactive approach has positioned the UAE as a global leader in mobile broadband penetration, with 5G coverage reaching an impressive 98.5% of populated areas. TR

As the UAE's regulatory authority, the TDRA is committed to ensuring the availability of interference-free spectrum

Cyber Resiliency: A New Measurement Matrix for Valuing Organizations and Nations in the Intelligent World

The modern concept of risk refers to the probability of an adverse outcome that could impact people, systems, or assets. From a technology risk perspective, it relates to the potential destruction, damage, or loss of data or assets resulting from a cyber threat. A cyber threat magnifies the chances of an adverse event, such as when a threat actor exploits a vulnerability inside your system.

Today's threat landscape is more volatile than ever. Cyber threats are multiplying and pose serious financial, legal, and reputational challenges to organizations. We propose that the latent capability of harnessing risks and hedging against the barrage of threats is a better way of measuring the value of organizations and nations. This is particularly relevant amid a digital transformation that heralds a new age characterized by digitalization, virtualization, and intelligentization.

Traditional compliance methods are no longer sufficient in today's rapidly evolving business landscape, where cyber takes center stage. Organizations are recognizing the need for a more dynamic approach to managing risks—one that prioritizes critical threats and aligns with their strategic objectives. This approach shifts the focus from a one-size-fits-all compliance checklist, which is all about "checking the box", to a strategy that prioritizes risks based on their potential impact on the organization at every business decision. It's about leveraging cyber as a tool that best delivers its promise and achieves outcomes that support business objectives. It's also about understanding which risks are most critical and addressing them proactively based on priority rather than spreading resources thinly across all potential threats.

Today, we are at a crossroad where AI and robotics will permanently change our world. We are all hurtling towards a quantum wormhole where we have not completed our digital transformation, yet we are talking about intelligent transformation—running before learning how to walk. Therefore, we must consider AI security in our cyber risk assessment.

The Open Worldwide Application Security Project (OWASP) recently warned the industry about the growing risk of data exposure risk as a result of AI in its new 'Top 10 List for LLMs.' Sensitive information disclosure via large language models (LLMs) and generative AI (GenAI) has become a more critical risk as AI adoption surges. Steve Wilson, project lead for the OWASP Top 10 for LLM Project, said, "Developers often assume that LLMs will inherently protect private data but we've seen repeated incidents where sensitive information has been unintentionally exposed through model outputs or compromised systems." Thus, there is a need to incorporate AI or intelligentization into our risk treatment equation, particularly for assets that include AI components or are part of the AI journey or corporate

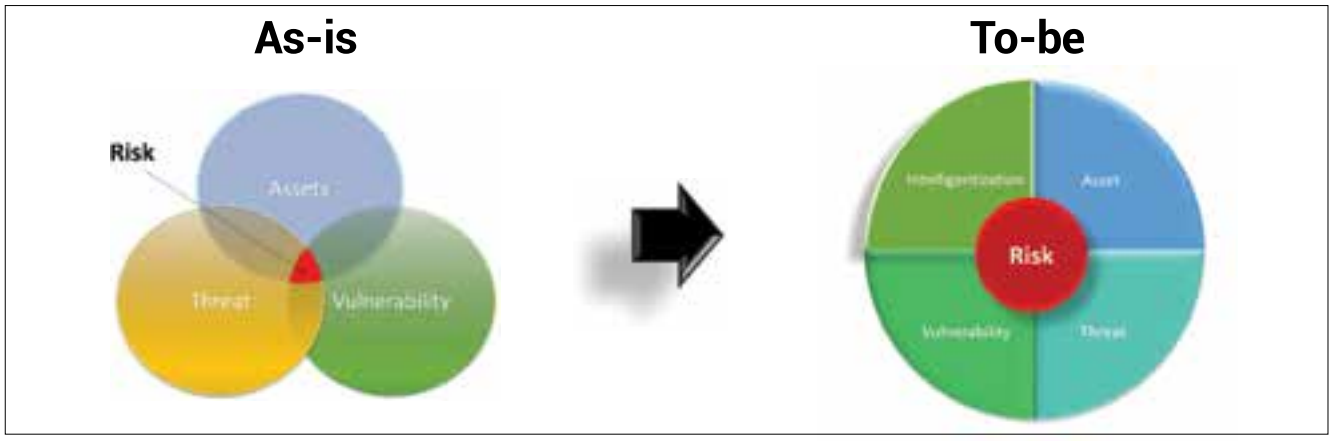

Diagram 1: Evolution of How We Treat Cyber Risk Assessment

strategy of intelligentization, as summarized in Diagram 1.

Adopting a risk-based cybersecurity model confers benefits beyond simply preventing cyberattacks. It builds cyber resilience and agility and brings together all the necessary stakeholders in the supply chain or even the business ecosystem into play, where expertise and resources are pooled together, leading to the development of stronger and more secure organizations, where security is only as strong as the weakest link. As such, we are directly addressing this big "elephant in the room" through the interplay of the new risk treatment methods highlighted above, while also bringing collaboration into play. However, where does collaboration lead?

The process that leads toward cyber diplomacy is critical when dealing with intelligentization's capabilities, such as evolving cybersecurity dangers and possibilities. Leveraging the new risk treatment methodology proposed in Diagram 1 as the DNA and foundational equation for building cyber resiliency, which can be further reinforced through collaboration within the organization's ecosystem of stakeholders, the next step in this evolution involves forming alliances and building relationships with the broader external environment. This often consists of transcending borders and traditional boundaries that define organizations or nations, raising awareness and

Diagram 2: Cyber Diplomacy as a Continuous, Self-Evolvement Framework for Building Resiliency and Trust

building a culture of cybersecurity. A basic understanding of cyber hygiene resonates as an alliance or group building unified standards, establishing processes for information sharing, and building capability and capacity together. Collectively, as an alliance, they tackle the volatile threat landscape and raise the threshold for cybersecurity, forming a stronghold that creates a continuous circle of trust through cyber diplomacy and realizing the value of developing joint norms and frameworks to manage and harness responsible technology adoption.

In conclusion, cyber resiliency is key to survival in the new intelligent world. The new intelligent world has redefined the security landscape. By taking proactive steps—leveraging actionable intelligence, building cyber resilience, and fostering collaboration that strengthens cyber diplomacy—organizations can defend against today's threats and prepare for tomorrow's challenges. It all starts with harnessing risk and introducing a new matrix for ranking organizational value and the readiness of countries in preparation for digitalization and national prosperity, bringing cyber resiliency to the forefront as a new measurement matrix for ranking the value of organizations and nations in the future intelligent world. TR

By Abdulghaffar Setareh, Chief Risk Officer, Zain Group, and Aloysius Cheang, Chief Security Officer, Huawei Middle East & Central Asia

Zayan Sadek, Middle East & Africa Service Provider Managing Director, Cisco

Cisco's New MD, SP, MEA Discusses Strategy, Next-Gen Demands, and Cybersecurity

In an exclusive interview with Telecom Review during the 18th edition of the Telecom Review Leaders' Summit, Zayan Sadek, Middle East & Africa Service Provider Managing Director at Cisco, discussed the company's innovative solutions for CSPs in the region.

As the new MEA Service Provider Managing Director, what strategy have you employed, and how have you engaged with CSP commercial operators in the region?

My strategy focuses on leveraging Cisco's broad portfolio to address unique market challenges and opportunities for CSPs in the region. Building strong and trusted partnerships with our customers is central to this, ensuring we understand their specific needs and deliver aligned, trusted solutions. We are empowering our customers by:

- **Driving Digital Transformation:** Promoting Cisco's advanced technologies enables CSPs to enhance their service offerings and improve operational efficiency. This positions service providers to meet the growing demand for connected services in the region, whilst also streamlining their operations.

- **Ensuring Security and Compliance:** Security is at the heart of our strategy. For 40 years, are leaders and a trusted partner in networking and security. Additionally, in March this year, Cisco announced its completion of the acquisition of Splunk Inc., (the cybersecurity and observability leader). This acquisition brings together two powerful innovation engines, creating one of the largest software companies globally. Our innovations help our customers prevent breaches, meet regulatory requirements, and protect both operations and customer data.

- **Enhancing Customer Experience:** Cisco's multi-channel customer engagement and observability solutions enable telco operators to improve application performance, link metrics to business outcomes, and deliver personalized customer experiences. This increases customer loyalty and reduces churn, driving long-term success.

- **Positive Market Trends:** MEA region's investment in digital infrastructure, coupled with the demand for advanced connectivity aligns with Cisco's strengths. By capitalizing on these trends, we position Cisco and our partners favorably for sustained growth and success in the region.

What strategy has Cisco's adopted to develop next-generation offerings that align with the current and future networking demands and business objectives of its customers?

Cisco's broader strategy to develop next-generation offerings is deeply rooted in its "One Cisco" approach. It is about leveraging the collective strength of Cisco's various technologies and solutions to deliver comprehensive, seamless, and innovative offerings that address the complex needs of modern organizations.

At the core of this strategy is Cisco's commitment to 'connecting and protecting organizations in the AI era.' This involves integrating networking, security, observability, and collaboration to create AI-ready data centers, future-proofed workplaces, and digital resilience. When you unify these pieces of the puzzle, Cisco uniquely powers how people and technology work together across the physical and digital worlds.

We deliver AI-ready data centers, transforming them to power AI workloads everywhere. Future-proofed workplaces modernizing the places where people work and serve their customers. Utilizing this approach, we ensure the resilience of data centers, workplaces, and the entire digital footprint, against all types of threats through game-changing security, assurance, and observability.

All of these areas are supported by AI. Cisco's portfolio is AI-native; AI isn't afterthought when designing our products. It has been fundamental across our whole stack, from networking, security, and collaboration, to improving productivity and delivering better outcomes.

Please tell us about Cisco's strategy when it comes to cybersecurity.

In today's complex and hyper-distributed digital landscape, businesses face an unprecedented level of risk. Expanded connectivity results in more opportunities for cyber criminals to disrupt critical infrastructure and global economies.

Cisco adopts a multi-layered approach that combines advanced automation capabilities with strategic human intervention to ensure robust and effective incident management. At Cisco, simplicity is a cornerstone of our security strategy. Our platform-based solutions are designed to seamlessly monitor and protect even the most complex environments, whether the customer is using SaaS applications, websites, or internal corporate resources.

Among our offerings, Cisco Hypershield stands out as the industry's first AI-native security architecture, designed to help customers defend against both known and unknown attacks. This innovative solution integrates functions traditionally associated with a modern firewall into the distributed network, utilizing a broad range of previously unreachable workloads and network enforcement points to deliver high-performance, intelligent, network security protection.

Additionally, our Cisco Security Cloud provides an AI-powered, cloud-native, integrated platform that delivers effective, scalable protection for organizations of all sizes. Rather than relying solely on human monitoring to detect anomalies or breaches across multiple points of attack, our solution harnesses an extensive set of telemetry data, allowing customers to easily identify trends.

Supported by the unparalleled expertise of Talos, our human intelligence team monitors 800 billion security events daily and discovers over 200 vulnerabilities each year. TR

Rashid Alahmedi, Chief Operating Officer, InfraX

How InfraX is Pioneering IoT and Sustainability in the UAE's Digital Revolution

As the UAE forges ahead with its ambitious digital transformation and sustainability goals, InfraX stands out as a key enabler within the ecosystem of Digital DEWA. During the 18th edition of the Telecom Review Leaders' Summit, Telecom Review conducted an exclusive interview with Rashid Alahmedi, Chief Operating Officer, InfraX, to learn more about InfraX's approach to responsible technology adoption, the company's 2025 vision for tailored solutions, and the transformative impact of IoT networks on the future of connectivity.

How is InfraX promoting responsible tech adoption and supporting the UAE's ambitious digital transformation and sustainability objectives?

InfraX is part of an ecosystem of subsidiaries under Digital DEWA, a subsidiary fully-owned by the Dubai Electricity and Water Authority that is guided by objectives designed to support the digital transformation agenda in Dubai and the UAE.

By enabling services and creating partnerships, we are helping the ecosystem implement innovative solutions and services and adopt this digital transformation agenda. This highlights the benefits of the ecosystem and its key players in delivering cutting-edge technologies, adapting to the latest technologies, and implementing state-of-the-art networks and data center services.

In 2025 and beyond, how will InfraX continue to deliver its wealth of experience in providing tailored IoT solutions across private and public sectors?

We have committed to empowering all our clients and customers by providing different types of solutions and delivering different types of collaborative business models. We believe in partnerships that create win-win scenarios.

At the same time, in 2025, our focus will be on the main key objectives of the government entities in the UAE, specifically, in Dubai. We will focus on how we can help them and their digital transformation and how we can implement more use cases within the smart city, automation, and AI fields. This will be achieved through our ecosystem of companies and partners under the Digital DEWA and InfraX umbrella.

From your perspective, how will IoT networks impact wireless cellular success in the long run?

When we look at the demands presented by a connected world, everything will require a wireless connection. Therefore, at InfraX, we are collaborating with the operators and we are also building our own private network to provide multiple options for smart city system integrators and partners to deliver their use cases. This will help them deliver their solutions in areas that will increase adoption, improve smart city use cases, and create a mass-connected world. TR

“We have committed to empowering all our clients and customers by providing different types of solutions and delivering different types of collaborative business models”

Marco Lichtfous, Managing Director of PMP Strategy Luxembourg

From Enablers to Solution Providers: The Telecom Industry's Next Frontier

The telecom industry has long been at the heart of technological innovation, driving progress with advancements such as 4G, 5G, and the Internet of Things (IoT). Yet, as the world continues to evolve at a rapid pace—shaped by digital transformation, sustainability goals, and the demands of a platform economy—the industry finds itself at a crossroads. For Marco Lichtfous, Managing Director of PMP Strategy Luxembourg, the answer is clear: it's time for telcos to go beyond networks and embrace a new role as solution providers.

Traditionally, telecom companies have defined themselves as enablers, delivering infrastructure, data, and connectivity. This position, while critical, is no longer enough. Lichtfous believes telcos must shift their mindset to actively deliver solutions tailored to the unique needs of industries, from healthcare and manufacturing to energy and agriculture.

"We have unique capabilities," he explains. "It's not just about building networks or enhancing internal operations anymore. Telecom companies have the expertise and tools to bring comprehensive solutions directly to industries, and it's time to seize that opportunity."

Fintech: A Proof of Concept

The fintech sector offers a clear example of how telcos can successfully expand beyond traditional roles. By entering the financial services market, some telecom companies have transformed into active solution providers, delivering mobile payments, digital wallets, and financial solutions to retail customers. This evolution didn't stop at providing connectivity; it addressed a specific market need and created a new revenue stream.

This success in fintech demonstrates what's possible when telecom companies take bold steps to deliver value beyond networks. If telcos can become solution providers in financial services, why not replicate this approach across other industries?

A World of Untapped Potential

Across sectors, the potential for telecom-driven innovation is immense. Take healthcare, for instance, where technologies enabled by telcos, such as remote surgery and connected care, are already revolutionizing patient outcomes. Or smart manufacturing, where predictive maintenance and enhanced connectivity are reshaping production processes. Energy management, agriculture, smart cities, and connected vehicles are further examples of industries where telecom solutions could drive real value.

Despite these possibilities, Lichtfous argues, telcos have been too focused on optimizing their existing operations rather than positioning themselves as strategic partners for industries. "We're still playing defense," he points out. "We see ourselves as infrastructure providers, not as innovators driving new solutions and revenue models. Isn't it time to play offense again?"

Building Ecosystems That Drive Value

For Lichtfous, the way forward lies in building ecosystems that integrate telecom capabilities with industry needs. Rather than simply offering the technological backbone, telcos should actively engage with businesses, understand their challenges, and deliver end-to-end solutions that create measurable value.

Imagine a car manufacturer, for example, working with a telecom provider to design smarter production lines, implement advanced maintenance systems, and enhance connected vehicle technology. Or a city partnering with a telecom company to build an integrated smart grid that optimizes energy usage and supports sustainability goals. These are not just theoretical opportunities—they are areas where telcos can lead, provided they embrace a solutions-oriented mindset.

"Telcos have the technology, the expertise, and the infrastructure," Lichtfous says. "What's missing is the willingness to step forward as solution providers, not just enablers."

Time for Bold Action

The path ahead requires a cultural and strategic shift within the telecom industry. Lichtfous challenges telecom leaders to adopt a more aggressive approach, one that positions them as advisors, innovators, and drivers of change across industries.

The question is no longer whether telcos have the tools to deliver these solutions. It's whether they are ready to claim their role as architects of the future. The time for bold action, as Lichtfous emphasizes, is now.

In a world where industries are increasingly interconnected, telcos have a unique opportunity to drive synergy, innovation, and growth. By moving beyond networks and building transformative ecosystems, the telecom industry can unlock new revenue streams and reaffirm its place at the forefront of global progress.

The telecom industry has the chance to redefine its role and shape the future. The question remains: **Who will lead the charge?** TR

> "In a world where industries are increasingly interconnected, telcos have a unique opportunity to drive synergy, innovation, and growth"

Charles Bligh, CEO, MYCOM OSI

MYCOM OSI: Invested in AI Innovation for Excellent Delivery

In an exclusive interview with Telecom Review during the 18th edition of the Telecom Review Leaders' Summit, Charles Bligh, MYCOM OSI's newest CEO (as of October 2024), expanded on the software company's solutions for mobile and fixed telecom services.

Can you tell us about MYCOM OSI's core offerings, and the company's strategy?
We have been investing significantly in AI for many years and remain committed to advancing our solutions. At the core of our strategy is a machine learning-driven platform, augmented with Generative AI that delivers two key outcomes. Through custom automation, our solutions reduce the time required to implement zero-touch operation centers for CSPs. Moreover, by placing AI-driven data recommendations into the hands of line-of-business executives, we

empower them to make informed decisions in real time.

This is no longer an aspiration but a reality. Through live demonstrations, customers can see how our solutions use data to drive cost reduction, improve responsiveness, and enhance proactive decision-making. By integrating network and business data—such as ARPU and churn statistics—we help CSPs improve customer experiences, reduce churn, and unlock opportunities for upselling new services.

While we are at the beginning of the AI revolution, it's vital for CSPs to adopt a fast, agile, test-and-learn approach. MYCOM OSI is fully committed to supporting this journey by continuing to invest heavily in AI innovation.

How will MYCOM OSI continue to leverage its AI and automation solutions to improve CSPs' customer experience and monetize new commercial offerings?

Data is often overlooked or perceived as a dry subject, however, in the context of AI, its importance cannot be overstated. The quality of AI outcomes depends heavily on the accuracy and comprehensiveness of the underlying data.

We strongly encourage CSPs to focus on integrating structured and unstructured data across their operations, combining it with their data lakes to unlock the next wave of cost reduction, churn improvement, and customer experience enhancement. By organizing and correlating data at-scale, CSPs can use AI to make better, faster decisions, not only for network management teams but also for sales, marketing, and customer service teams.

AI holds immense potential but getting the data foundation right is critical. The benefits of well-managed data are enormous, enabling CSPs to optimize decision-making in real time and improve performance across the organization.

While 5G continues to grow steadily, we see a swift growth in fiber-based networks. What is your outlook regarding this resurgence, and how can it be harnessed to deliver new digital services at high performance?

Our expertise lies in scaling mobile networks; however, we also have two decades of extensive experience in fixed-line networks, including ADSL and fiber. Today, we assure and automate fiber networks and have recently launched specific solutions to make this process even easier for our customers.

While 5G remains a crucial focus globally, fiber is equally significant. Many CEOs and CTOs I speak with are highly invested in fiber deployments. From my experience in deploying fiber as a telecom executive, I've observed a fundamental shift in customer expectations. Unlike earlier technologies, such as ADSL and coaxial, fiber delivers a much higher standard of speed and reliability, and customers expect nothing less.

Given the premium pricing and heightened expectations around fiber, ensuring excellent assurance and automation is vital. At MYCOM OSI, we are investing heavily in this area to support CSPs in delivering exceptional service quality for fiber networks. TR

> The quality of AI outcomes depends heavily on the accuracy and comprehensiveness of the underlying data

TRS-24: A Continuation of ICT and Telecom Excellence That Knows No Bounds

Under the annual theme 'Global. Regional. Digital,' the 18th edition of the Telecom Review Leaders' Summit successfully wrapped up its two-day event, bringing together a diverse group of professionals, including telecom operators, vendors, industry regulators, government officials, content providers, cybersecurity experts, consultants, and other notable attendees.

DAY 1

WELCOME NOTE
Toni Eid, Founder of Telecom Review, and CEO of Trace Media International

OFFICIAL OPENING KEYNOTE:
Eng. Tariq Al Awadhi, Executive Director, Spectrum Affairs Department, TDRA

OPENING FIRESIDE CHAT:
Fahad Al Hassawi, CEO, du
Toni Eid, Founder of Telecom Review, and CEO of Trace Media International

Prior to the summit, on December 9, 2024, Telecom Review hosted the International Telecommunication Union (ITU) CxO meeting in collaboration with the TDRA, du, and Huawei.

The Telecom Review Leaders' Summit solidified its status as one of the most prominent and highly anticipated ICT events in the industry. Thousands of distinguished guests participated, representing various facets of the ICT sector. The event was supported by the Telecommunications and Digital Government Regulatory Authority (TDRA) and featured an esteemed roster of sponsors, including du, Netcracker, Huawei, PMP Strategy, Eurisko, Amazon Web Services (AWS), Cisco, Comarch, PCCW Global Console Connect, MYCOM OSI, NEC, Nokia, Salam, TELUS, Apptium, Fortinet, InfraX, Related, Sofrecom, Verizon, YUVO, AvanteBSS, Emircom, Pure Storage, Telcovas, Telecom Egypt, and ZTE.

From December 10–11, 2024, the Ritz-Carlton Dubai's expansive conference hall and exhibition area bustled with activity and served as a space for engaging sessions, meaningful networking, and brand promotion.

Telecom Review Leaders' Summit

Opening the floor of the 18th edition of the Telecom Review Leaders' Summit, Founder of Telecom Review, and CEO of Trace Media International, Toni Eid, addressed the audience with a welcome note, sharing Telecom Review's milestones and highlighting the industry's most notable achievements.

This year's summit raised the bar higher than ever, thanks to the participation of leading figures in the ICT industry from across the globe, representing regions such as the Middle East, Africa, North America, and the Asia Pacific.

Vikram Sinha, CEO, Indosat Ooredoo Hutchison (IOH)

Alex Xu, President of Carrier Business, Huawei Middle East & Central Asia

Jeffrey Hulse, Senior Vice President and Group President, Verizon Partner Solutions

Karim Benkirane, CCO, du

Gordon Thomson, EMEA SP VP, Cisco

Kenji Takemura, Director, Service Provider Solution Department, Head of EMEA Transport Center of Excellence (COE), NEC Corporation, Japan

FIRESIDE CHAT:
Sylvain Seignour, President, Netcracker Technology
Issam Eid, CMO Africa, Levant, KSA & Qatar, Telecom Review Group

FIRESIDE CHAT: Enabling growth in the Middle East and African Telecom sector: AWS's role in regional cloud innovation
Bernard Najm, Vice President Telco MEA, Amazon Web Services (AWS)
Zakaria Chouaib, Managing Director, PMP Strategy MEA

Day one featured a keynote by Eng. Tariq Al Awadhi, Executive Director, Spectrum Affairs Department, TDRA, who officially inaugurated the summit. The day's first two fireside chats explored the impact of the integration of emerging technologies such as artificial intelligence in the 5G era and evolution of digital transformation.

The ICT Leaders' Panel spearheaded several exclusive discussions, tackling topics like autonomous networks, network cloudification, generative AI (GenAI), sustainability, cybersecurity, and digital transformation. The day concluded with a certificate of appreciation ceremony, recognizing the event's sponsors.

The panel entitled 'World's First 5G-A Region Sets Sail,' saw operators, regulators, vendors and industry stakeholders celebrate the efforts being made in 5G-A acceleration across the region.

On day two, Eng. Mohammed Jadah, Director Wireless Networks and Services, TDRA, delivered the official opening keynote. Additional panels included the second ICT Leaders' Panel session and discussions on wholesale, infrastructure deployment, women in ICT, and artificial intelligence.

Throughout the summit, the following prominent leaders in the ICT industry delivered keynote speeches, adding further depth to the event's agenda:

Vikram Sinha, CEO, Indosat Ooredoo Hutchison (IOH)
Alex Xu, President of Carrier Business, Huawei Middle East & Central Asia
Karim Benkirane, CCO, du and Saleem Alblooshi, CTO, du
Gordon Thomson, EMEA SP VP, Cisco
Kenji Takemura, Director, Service Provider Solution Department, Head of EMEA Transport Center of Excellence (CoE), NEC Corporation, Japan
Mikko Lavanti, Senior Vice President, Mobile Networks, MEA, Nokia
Mounir Ladki, President and CTO, MYCOM OSI
Marco Lichtfous, Managing Director, PMP Strategy Luxembourg

PANEL: THE TELECOM LEADERS' PANEL -Session 1-

PANEL: AI EMPOWERING HIGHLY AUTONOMOUS NETWORKS – Powered by Huawei

PANEL: UNLOCKING THE POTENTIAL: NETWORK CLOUDIFICATION AT SCALE FOR CORE & IT TELECOM WORKLOADS - Powered by AWS

5G-A Launching Ceremony

PANEL: WHOLESALE INDUSTRY - SIGNIFICANT INFLUENCE IN THE ERA OF MULTI-CONNECTIVITY

PANEL: WOMEN IN ICT

DAY 2

OFFICIAL OPENING KEYNOTE:
Eng. Mohammed Jadah, Director Wireless Networks and Services,TDRA

Saleem Alblooshi, CTO, du

Osman Sultan, Founder & Chairman, Fikra Tech

Mikko Lavanti, Senior Vice President, Mobile Networks, MEA, Nokia

Mounir Ladki, President and CTO, MYCOM OSI

Marco Lichtfous, Managing Director, PMP Strategy Luxembourg

FIRESIDE CHAT: The Role of AI & Advanced Technologies in Empowering the Youth by du Youth Council
Maha Almarzooqi, Manager UI Design Lead, du
Rashid Alsaadi, Engineer - Broadcasting Operations (Trainee), du
Moderator: Elvi Correos, Senior Journalist, Telecom Review Group

PANEL: THE TELECOM LEADERS' PANEL -Session 2-

PANEL: DEVELOPMENTS IN THE CLOUD INDUSTRY AND THE ROLE OF HYPERSCALERS

PANEL: ARTIFICIAL INTELLIGENCE: WHAT IT MEANS FOR TELCOS AND CONSUMERS

PANEL: THE "POTION" FOR THE RIGHT INFRASTRUCTURE DEPLOYMENT

PANEL: CYBERSECURITY UNDER THE SPOTLIGHT: DATA PRIVACY AND REGULATION

PANEL: FROM TELECOM TO TECHNOLOGY PLAYERS: ENTERING THE FINTECH FIELD


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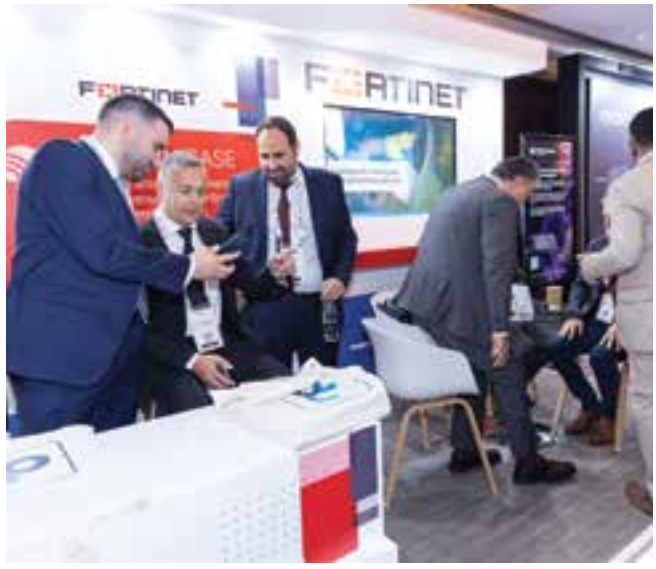
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WELCOME TO THE

Telecom Review Excellence Awards

A key highlight of the summit was the annual Telecom Review Excellence Awards ceremony, which honored the outstanding ICT brands and leaders for their achievements over the past year. The awards were followed by the annual gala dinner.

Jeff Seal, Chief of the Awards Committee, Managing Partner, and Editor-in-Chief of Telecom Review North America, remarked, "In 2024, the Telecom Review Excellence Awards set a new benchmark, attracting significant industry interest with a record-breaking number of global nominations. To accommodate this, we introduced more distinct awards on a global and regional scale. These awards remain the industry standard for peer recognition, thanks to the thorough deliberation by our esteemed panel of global experts. Congratulations to all the winners, and we look forward to another celebration of excellence next year!"

Reflecting on the summit's success, Toni Eid, Founder of Telecom Review, and CEO of Trace Media International, expressed his gratitude, stating, "These milestones demonstrate not only our growth but also our unwavering commitment to recognizing the leaders within the telecom and ICT industry, year after year. I would like to express my deepest gratitude to all the ICT leaders who have been brought together through this summit. Join us next year for a groundbreaking 19th edition."

This year, the awards were divided into global and regional categories. The full list of winners can be found here. TR

Best Fiber Infrastructure Deployment Global - Best Technology Deployment Americas - TELUS

Best Fiber Infrastructure Deployment Americas - Verizon Partner Solutions

Best 5G Advanced Innovation (Vendor) Middle East - Huawei

Best 5G Advanced Innovation (Vendor) Africa - Telcovas Solutions and Services Limited

Best 5G Advanced Leading Network (Operator) Middle East - du (EITC)

Best 5G Advanced Business Innovation (Operator) Middle East - Zain KSA

Best 5G Advanced Business Innovation (Operator) Asia - China Mobile International

Best CSR Initiative Africa - Sofrecom & Orange Egypt

Best 'Telco-Techco' Partnership Award Asia - e& International Digital JV

Best Cloud Provider (Operator) Middle East - Ooredoo Oman

Best Wholesale Company Global - Airtel

Best Wholesale Company Middle East - Mobily

Best Fixed 5G Network Provider Middle East - Saudi Telecom Company KSA

Best Loyalty & Rewards Program Middle East - Asiacell / Related

Best Digital Transformation Provider (Vendor) Middle East - Comarch / du

Most Innovative Product/Service/Automation (Vendor) Global - NEC

Best Innovative Regulator Middle East - The Telecommunications and Digital Government Regulatory Authority (UAE)

Best CSR Initiative Middle East - du (EITC)

Best 5G Advanced User Experience (Operator) Middle East - e& UAE

Best Digital Transformation Provider (Vendor) Asia - ZTE Corporation

Best AI Use for all Verticals Global - AB Handshake

Most Innovative Product/Service (Operator) Global - Console Connect

Most Innovative Product/Service/Automation (Vendor) Middle East - Yuvo

Most Innovative Product/Service/Automation (Vendor) Americas - Netcracker Technology

Most Innovative Product/Service/Automation (Vendor) Asia - Mycom OSI / Globe Telecom

Most Innovative Product/Service/Automation (Vendor) Europe - Vox Solutions

Best AI Application for Telco (Vendor) Global - Huawei Autonomous Network

Best AI Application for Telco (Vendor) Middle East - Nokia Networks & Solutions / STC

Best BSS/OSS Solution (Operator) Middle East - Zain KSA

Best BSS/OSS Solution Asia - AvanteBSS

Best Technology Deployment Global - Mavenir

Best Technology Deployment Middle East - stc Bahrain

Best MVNO Middle East - Salam

Best App Digital Storefront Global - Apptium Technologies

Best BSS/OSS Solution Global - Netcracker Technology

Best Telecom Operator Middle East - e& UAE

Best Digital Transformation Provider (Vendor) Global - Huawei

Most Innovative Product/Service (Operator) Middle East - du (EITC)

Best MVNO (5G Secure First Response) Americas - GuardianSafetyNet

Best Data Center Provider (Operator) Middle East- center3

Best Data Center Provider (Vendor) Middle East - Cisco

Best Security Solution Provider Middle East - Fortinet Middle East

Best Security Solution Provider Americas - One37 Solutions Inc

Best Smart City Acceleration Initiative Middle East - InfraX A Digital DEWA Company

Best ICT Investment Asia - Power International Holding

Best Cloud Provider (Operator) Asia - du

Telecom Review Merit Leader Awards

Merit Leader CEO of the Year – Operator Global
Vikram Sinha, President Director and CEO Of Indosat Ooredoo Hutchison

Merit Leader CEO of the Year – Operator -Middle East
Fahad Al Hassawi, CEO, du (EITC)

Merit Leader CEO of the Year – MVNO-Middle East
Ahmed Mohammed Al-Anqari, CEO, Salam

Merit Leader CEO of the Year – Infrastructure Company Middle East
Fahad AlHajeri, CEO, center3

Telecom Review Hosts Influential ITU CxO Meeting for 6th Consecutive Year

Telecom Review hosted the high-profile ITU CxO meeting in collaboration with TDRA, du, and Huawei, for the 6th consecutive year in Dubai on December 9th, 2024, at the Ritz Carlton in Dubai.

In his opening speech, Seizo Onoe, Director of the Telecommunication Standardization Bureau at ITU, acknowledged the C-level participation, adding that such participation "influences the discussion." He noted the significance of collaboration and expressed that he is "hopeful about the future" of international standards. Onoe also congratulated Toni Eid, Founder of Telecom Review and CEO of Trace Media International, for hosting its successful 6th consecutive ITU CxO meeting.

Eid expressed pride in Telecom Review's partnership with the ITU and the consistent support from TDRA, du, and Huawei in organizing this significant event. He noted that these collaborations play a key role in making the event possible. He also congratulated the Telecom Review team and other TRS esteemed partners for their respective contributions.

The Business Impact of Standards

Dr. Bilel Jamoussi, Deputy-Director at ITU, and Charlyne Restivo, Programme Coordinator at ITU, co-moderated a panel discussion titled 'The Business Impact of Standards.'

The esteemed panelists in the session, included Eng. Saif Bin Ghelaita, Director Technology Development Affairs at TDRA; Saleem Alblooshi, Chief Technology Officer, du; Per Beming, Head of Standards and Industry Initiatives at Ericsson; and Xin Chang, Huawei's VP of Standardization and Industry Development.

The discussion focused on ICT standardization, business and regulatory perspectives, and other

key priorities from vendors, solution providers, and operators who deploy telecom equipment and solutions. The panel aimed to gain insights from industry leaders on why they invest in standards and how these standards serve as a crucial tool in the ICT business.

From a regulator's perspective, Bin Ghelaita said that adhering to global standards and advocating for telecom standardization, especially concerning spectrum allocation, are major factors for organizing the global implementation of telecom services. He said that the Quality of Service (QoS) helps in measuring the relevance of service. He also stressed the importance of interoperability.

Bin Ghelaita noted that customers want standardized solutions and that it is very important to engage within a common global ecosystem. "Standardization helps in the overall innovation, improving the competition of market with standardized solutions, making it more affordable," Bin Ghelaita reasoned. He also pointed out that the integration of emerging technologies encourages research and development (R&D).

Operator Perspective

Commenting from an operator's perspective, Alblooshi said that the telecom industry has succeeded due to standardization bodies. He noted that standardization helps telecom operators compete with multiple players, which is good for innovation. He also said that the right standardization would help avoid vendor lock-in scenarios.

He recognized the importance of the ITU and 3GPP in driving digital transformation within the industry. He encouraged partners to push for standardization and consider issues related to cybersecurity and business continuation. He also said that du is collaborating alongside TDRA to establish a 6G roadmap, reiterating that standardization is key and advocating for active participation.

Alblooshi emphasized the importance of technology standards and urged the transition from closed ecosystems to open interfaces, promoting greater interoperability. Regarding priority topics for standardization, Alblooshi opined that an Open RAN model simplifies complexity and helps add value, features, and new capabilities for technologies such as 5G-Advanced. "We are in a strong position to lead 5G and the early adoption of 6G, the integration of AI, and automation," said Alblooshi.

Vendor Perspective

From a vendor's perspective, Beming emphasized the need for the industry to collaborate on developing the ecosystem, defining the right set of products, ensuring high-level interoperability, and accelerating equipment development for global impact. He stated, "International standards are fundamental for our products."

Beming pointed out that 90% of research for solutions is not utilized due to incompatible standards. He explained that the right interfaces will benefit multi-vendor ecosystems because the market will be very cognizant of inconsistencies. In terms of priority, Beming stressed the importance of API standardization, leveraging AI, 6G, AI governance, and the interplay of open-source community standards.

He advocated for collaboration between the ITU, Linux foundation, government, developers, and customer support. Beming also highlighted the need for standardization tests and encouraged engagement with universities to make international standards more popular.

International Standardization for Innovation

Meanwhile, Xin Chang recognized the many members of the ITU submitting solutions related to sectors such as the metaverse or public infrastructure. She underscored the importance of international standardization to develop products that are more green, more intelligent, and more digitalized to improve products through better technology and production. Chang said that contribution from the vendor community will improve innovation and that it cannot be done without the right standardization. "A unified standardization policy will help vendors and operators," Chang reiterated.

Dr. Jamoussi presented a brief overview of the outcomes of ITU World Telecommunication Standardization Assembly (WTSA-24), held in New Delhi, India, from 15-24 October, 2024; the governing conference for ITU standardization sector that provided a first-hand perspective of the ITU industry for regulators and other industry stakeholders. He explained that the latest ITU initiatives are revolving around AI governance, sustainable digital transformation, new technology policies, market demands, emergency responses, and female participation in ICT.

A brief Q&A between the attending CxOs and the panelists concluded the discussion.

ITU-T Group Consideration

CxOs from the following companies submitted their presentations to the ITU-T Group for consideration:

- NTT – Towards Sustainable ICT Infrastructure Fostering Future AI Systems
- Huawei – Insights into Optical Networks Towards 2030 for the AI Age
- CAS Quantum Network – Brief Introduction to Quantum Communication
- Rhode & Schwarz – QoS from Space: Potential QoS Assessment of Satellite Networks
- LoRaWAN – NTN for IoT
- Sateliot – Seamless Affordable 5G IoT
- GuardianSafetyNet – Saving Lives: A Modern Public Safety Network
- Nokia – AI in Networks
- Turkcell – AI for Networks and Networks for AI
- du – Arabic-First Telecom ChatGPT for MENA Region
- ABHandshake – Real-Time Call Validation Framework
- Somos – International Do Not Originate for Fraud Mitigation
- Shanghai Data Exchange - The Overview of China Data Factor Market construction TR

Eng. Tariq Al Awadhi,
Executive Director,
Spectrum Affairs, TDRA

I saw many of our friends as well as different people from different places and industries such as telecom operators, vendors, and suppliers, among others. I always encourage this summit as it brings all these people together to address the new challenges and technologies in the industry.

Fahad Al Hassawi,
CEO, du

The Telecom Review Leaders' Summit is a great annual opportunity to really connect with industry leaders and hear the latest stories and experiences from different senior people in the industry. I always find it to be a very useful annual meetup and I always make sure to attend this event every year.

Seizo Onoe,
Director,
Telecommunication Standardization Bureau (TSB), ITU

This summit brings together industry leaders to share their views on industry evolution. This covers a wide range of areas including AI, 5G and beyond, cybersecurity, and climate actions.

Ramy Boctor,
CTIO, Vodafone Qatar

As this is my first time attending the summit, the least I can say is that it far exceeded my expectations; it gave me very insightful ideas regarding the industry's development and it offered an excellent chance for me to network with great minds both in the region and globally.

Mohamed Nasr,
CEO, Telecom Egypt

We have been long-standing friends with Telecom Review for many years, and it serves as an excellent platform to connect with industry leaders and peers. Telecom Review has created a valuable space for collaboration and continuous learning, enabling us to stay updated on the latest trends and innovations.

Mikko Lavanti,
SVP, Mobile Networks,
Nokia MEA

This is the fourth time that I've personally attended and witnessed the amount of people that gather here yearly. It's a great time of the year to celebrate our teams', our customers', and our partners' success and have a little bit of a break at the end of the year.

Ahmed Al-Anqari,
CEO, Salam

The Telecom Review Leaders' Summit is an important conference where we network with our partners and clients. This is my second or third time attending and, as always, Telecom Review has really good speakers and attendees.

Gilles Vaqué,
President and Founding Partner, PMP Strategy

This event offers a great opportunity to connect with all the ecosystems, present the expertise we have gained from other countries and regions, and share best practices between actors; it's key to becoming better.

Nicolas Levi,
CEO, du Pay

The Telecom Review Leaders' Summit is always an exceptional event, bringing together key industry players from across the region. Each year, we gain valuable insights into the diversification of the telecom industry.

Charles Bligh,
CEO, MYCOM OSI

As a company focused on innovation and pushing industry boundaries, the Telecom Review Leaders' Summit serves as the perfect platform to discuss how we can continue to drive transformation together.

Ned Taleb,
Founder/CEO, Reailize, B-Yond, YUVO, Audela

It was a truly rewarding experience to engage in thoughtful, high-level discussions on crucial topics. The caliber of speakers and panelists was phenomenal.

Monty Hamilton,
Chief Product & Marketing Officer, TELUS Digital

I thoroughly enjoyed my time at the Telecom Review Leaders' Summit, connecting with other like-minded leaders, and sitting right on top of a wave of opportunity within the telecom sector that is serving as a great source of energy.

Dr. Bilel Jamousi,
Deputy to the Director and Chief of Telecommunication Standardization Policy, ITU

We're incredibly grateful to Telecom Review for hosting the ITU CxO meeting for the sixth time at this remarkable summit. This year's discussions highlighted strong synergies among executives, fostering collaboration as we drive the digital future forward.

Karim Benkirane,
CCO, du

The Telecom Review Leaders' Summit is very important for me because this is where I meet my colleagues at the industrial level from different corners of the world. I also learn from others' experiences. All the keynote and panel discussions are of high-quality input, helping us to gage where we are.

Hicham Siblini,
CTIO, Ooredoo Qatar

The Telecom Review Leaders' Summit has become one of the most critical events in the region and worldwide. Here, you have professionals and leaders who exchange ideas and it's also a good networking opportunity.

Shazia Sobani,
Vice President Fibre Networks, TELUS

This is an important global platform which brings the talent and perspectives of leaders and experts from across the globe together to discuss what's happening today and the challenges faced by our industry.

Rafał Lenczewski,
CEO, Pretius

Attending the 18th edition of the Telecom Review Leaders' Summit is essential for us because we deliver services for this particular sector: telecommunications. It's an excellent opportunity to gain insights about the latest trends in telco. Meeting the leaders and decision-makers from large telecommunications organizations is also a great opportunity.

Kenji Takemura,
Head of EMEA Transport CoE, NEC

It is my first time attending and I witnessed leaders talking about their ideas and solutions for improving the telecom industry and data.

Najla Alkaabi,
Head of AI (Acting), du

This was my first time attending the Telecom Review Leaders' Summit, and I was thoroughly impressed by the level of commitment from stakeholders and representatives across industries.

Dr. Lidia Ustasiak-Stępińska,
President of the Polistratos Institute for Systemic Innovation

The Telecom Review Leaders' Summit is a real powerhouse of ideas. It is a pleasure to be here and share ideas, listen to other people and experts, exchange perspectives and views, and compare regional differences and similarities.

Gagan Tandon,
Chief Data and AI Officer, TELUS Digital

I want to express my thanks to the event organizers who brought together a cohort of executive leaders in telecom and artificial intelligence as they are the ones making the most impact in this industry.

Rick Kapani,
Founder and CEO,
Apptium

Telecom Review is revered throughout the industry as it fosters high-caliber conversations, dissects meaningful topics and brings the vendor community together; thus, we are able to collaborate through thoughts, ideas, and even disagreements.

Summer Chen,
Vice President and General Manager of Branding and PR Strategies, ZTE

Telecom Review has a long-time collaboration with ZTE. What impressed me is the independent reporting, which is quite important because it adds great value to the telecom industry. I really appreciate Telecom Review for setting up this valuable platform that fosters collaboration and drives innovation in various industries. We thank Telecom Review for their support, and we look forward to working together to embrace a bright future.

Anup Gupta,
President of the SAARC Region, APTelecom

It is very important for us to attend because we get to see a lot of what will come tomorrow. Many of the discussions are very eye-opening. It's important for us to meet industry peers, and this is one of the best events we've seen in recent days.

Rashid Alahmedi,
Chief Operating Officer, InfraX

Telecom Review facilitates collaboration between different parties and we are glad to be a sponsor and also participate in this edition. We believe that such a forum will enhance collaboration and will improve the synergy between the different parties.

Jennifer Parkhill,
Senior Director Strategy Execution, Program Management, Verizon Partner Solutions

It's been great meeting with our customers and partners in the region. Telecom Review offers the opportunity to connect and learn about the progress companies are making in GenAI and 5G adoption and provides insight into the future global environment.

Zayan Sadek,
Middle East & Africa Service Provider Managing Director, Cisco

The Telecom Review Leaders' Summit fosters a lot of innovation and new ideas. It serves as a great platform for ICT and telecom leaders from the region and beyond to connect and share ideas, challenges, and solutions for the industry.

Gina Perini,
CEO, Somos

Being here allows me to be around innovators and the people who are solving tough problems in the industry and bringing exciting innovation to all consumers across the world. This is the place you really want to be.

Jasim Al Awadi,
CICTO, du

Telecom Review always brings thought leaders to one place where we can share our experiences, knowledge, and best practices.

Bernard Najm,
Vice President Telco MEA, AWS

I always look forward to attending the event not only because there is a possibility to share information about our latest endeavors but also because it presents the chance to gather a lot of information on what our customers and colleagues are implementing.

Andrew Douglas,
Senior Director, Global Telco Lead, Pure Storage

It has been a great experience so far. We have really enjoyed it over the last couple of days. Apart from a wide variety of very rich content, it brings us up-to-date on where things are heading.

Maria Stebneva,
Head of Sales, Canada, Juniper Networks

The Telecom Review Leaders' Summit is a fantastic event. Toni and his team are doing a fantastic job in bringing together special talents from the executive level who are sharing innovative ideas alongside basic ideas (such as how to build a common infrastructure). What I like about the discussions is that they all make sense.

Stelios Savvides,
Chief Technology Officer, Vodafone Oman

I have attended the event for the last three years. For me, this event is important because it brings industry leaders and peers together. It offers a great chance to talk about the latest trends and issues we are dealing with, including the latest capabilities that are coming to the market.

Alex Xu,
President of Carrier Business at Huawei Middle East and Central Asia

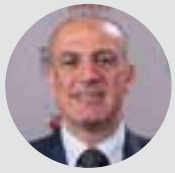
This is a great summit that is famous in the Middle East. For me, joining the summit is valuable as it enables us to exchange ideas and connect with friends, making it a very significant summit.

Tony Geheran,
President, Strategic Broadband Consulting

This is my second year attending the Telecom Review Leaders' Summit; similar to last year, it's been a great experience. It's really interesting to see the experiences encountered in this region and the dynamics of it; it contrasts my experiences in Canada.

Sultan Osman,
Founder and Chairman,
Fikra Tech

If I'm not mistaken, I've attended all 18 editions. So, if you ask me the questions, 'Does it still make sense for you to attend?' and 'Is it something you benefit from?' my answer would definitely be 'Yes' as we live in a world where so many things happen every year. For example, this year, we have seen many 'buzz words' such as AI, blockchain, and fintech.



Issa Chini,
COO, One37

Attending the 18th edition of the Telecom Review Leaders' Summit was invaluable to me as it provided a unique platform to connect with global leaders in the telecom and ICT sectors. The Summit was a vibrant hub of ideas, innovation, and networking opportunities, enabling me to stay ahead of the trends and challenges in today's fast-paced ICT ecosystem.

Diane El Hachem,
COO, Related

For many years, we have attended the Telecom Review Leaders' Summit, and every year, we leave very happy and satisfied with the insights and connections we gained. This year, the lineup was excellent.

Elias Saab,
CCO, Sofrecom

I've been attending Telecom Review's events for a decade. Sofrecom has been sponsoring this event for more than eight years now and there are many reasons that make this event unique. First of all, it's really a great platform to learn more about the ecosystem; we get to connect with the greatest leaders and senior executives from the ICT industry here. Lastly, I appreciate the amazing conversations and insights that we have over these two days.

Rabih Farhat,
CEO, Related

It's an excellent event whereby all industry leaders can connect, network, share their knowledge and expertise, and discuss the latest trends and innovations in the telecom industry, both in general as well as specific sectors like loyalty and rewards and customer experience.

Johannes Hummer,
Regional Head, MEA,
Vodafone Partner
Markets

I have been attending the Telecom Review Leaders' Summit events since 2016. I've had the pleasure of being part of both the Dubai and Lebanon editions. It brings together industry experts from the telecom and ICT sectors, as well as regulators, ministers, and public officials. What Toni Eid has accomplished over these two days is truly impressive, as he is fostering collaboration across the industry.

Andreas Hipp,
Executive Chair,
ConnectiviTree

I have to thank Toni, who invited me to join the summit. For me, to close the year and have some face-to-face meetings and a bit of personal time with some well-known partners and customers is very valuable. I also appreciate the content that is shared by a lot of the leaders here.

stc Group and Huawei Launch SuperLink, Expanding 5G Connectivity across Saudi Arabia

stc Group and Huawei have launched SuperLink, a digital solution that allows for efficient 5G network connectivity across remote regions throughout Saudi Arabia.

The SuperLink offers 5G connection without extensive tower space and antennas. It operates 200% faster than the previous 5G tower model and promotes sustainable growth by minimizing infrastructure footprint and energy use.

The commercial launch of SuperLink marks a monumental achievement in the Group's mission to drive connectivity across the kingdom and bridge the digital divide.

Riyadh, Saudi Arabia, November 29 2024 - stc Group and Huawei have begun the commercial launch of SuperLink, a digital solution connecting remote regions with high-speed 5G network connectivity. The launch aligns with stc Group's mission to drive high-speed and reliable network connectivity across Saudi Arabia.

The Huawei SuperLink is a multi-band wireless transmission solution that bundles multiple common frequency bands into a large-bandwidth and long-distance link, eliminating deployment bottlenecks that are frequently incurred on the previous 5G E-band tower model, and accelerating 5G development in remote areas.

It operates 200% faster than the previous tower model and also expands the 5G network to remote areas without demanding an extensive infrastructure footprint, adhering to the Group's sustainability agenda.

Compared with the traditional single-band parallel link solution, the SuperLink reduces the number of antennas by 67%, significantly improving the efficiency of the deployment of the new model of 5G towers, and lowering tower rental costs. The launch of SuperLink aligns with stc Group's mission to drive world-class connectivity across the kingdom.

Ooredoo Kuwait's 2024 Triumph: Combining Technology, Sustainability, and Customer Focus

The year 2024 marked a transformative phase for Ooredoo Kuwait, under the visionary leadership of CEO Abdulaziz Al-Babtain. The company achieved remarkable successes, solidifying its position as a pioneer in telecommunications and digital solutions.

These achievements were driven by a bold strategic vision that prioritized technological innovation and investment in artificial intelligence (AI) as key pillars for redefining excellence in the sector.

Throughout the year, Ooredoo Kuwait cemented its reputation as a leading provider of integrated communication services and advanced digital solutions, surpassing 2.9 million customers by September—a milestone that reflects consumers' growing trust in its innovative services and tailored solutions.

Aligning with Kuwait's Vision 2035, the company has continued its sustainable growth trajectory, emerging as a vital enabler of the country's digital transformation journey.

CEO's Vision

"Innovation and continuous development are the cornerstones of our strategy," said Abdulaziz Al-Babtain, CEO of Ooredoo Kuwait. "Our 2024 achievements are the result of a relentless commitment to quality, innovation, and customer satisfaction. We're paving the way for a future where technology and human capital work in harmony to drive excellence." He added, "Our exceptional team, combined with a bold strategic vision, has positioned Ooredoo as a leader in the rapidly evolving telecommunications sector."

Transforming Digital and Technological Infrastructure

Ooredoo Kuwait invested heavily in enhancing its digital and technological infrastructure, positioning itself at the forefront of innovation. Key advancements included:

- Deployment of 5G mmWave technology, enabling faster and more reliable connectivity
- Introduction of NB-IoT solutions for smart industrial applications
- Adoption of solar-powered base stations, reinforcing sustainability efforts
- Achieving PCI DSS 4.0 certification, setting new standards for cybersecurity and data protection

Zain KSA Advances 5G Connectivity with Transparent Glass Antenna Trials

The rapid expansion of 5G technology has positioned the MENA region as a frontrunner in digital innovation, demonstrating impressive adoption rates that play an integral role in driving economic growth and transforming multiple industries. These advancements have enabled extensive regional connectivity, particularly among mobile users, with 5G subscriptions expected to climb to 500 million by 2030, based on the most recent projections.

However, while 5G networks allow for faster roll out, greater capacity, and broader coverage, the same technology has its disadvantages when mobile users move indoors. As buildings incorporate increasingly complex designs and varying materials, achieving adequate 5G coverage indoors has become an ongoing challenge.

Where Challenges Meet Solutions

Inconsistent indoor connectivity has plagued businesses, public spaces, and homeowners for over six years since 5G's initial deployment, often preventing mobile network operators (MNOs) from fully leveraging the technology's powerful features. This limitation affects users' ability to access streamlined connectivity, creating an opportunity for innovative solutions that support data-heavy applications.

As the demand for 5G connectivity grows throughout the region, providers are tasked with ensuring that customers can seamlessly access their services at any time or any place.

Renowned for its leadership in 5G networks across Saudi Arabia and the region, Zain KSA is driving advancements that are reshaping connectivity. One such innovation is the deployment of Zain KSA's 5G-powered Fixed Wireless Access (FWA), which provides homes and small businesses with high-capacity connectivity using Customer Premises Equipment (CPE) devices that convert 5G frequencies into high-performance Wi-Fi. Recently, Zain KSA announced the successful testing of 'The Glass Antenna,' a new technology that will transform how 5G is experienced across the Kingdom and beyond.

Introducing The Glass Antenna

5G connectivity requires a denser network of base stations to ensure consistent indoor connectivity due to the smaller footprint coverage of the technology. Subsequently, companies are faced with implementing solutions to enhance user experience without resorting to traditional signal receptors that could disrupt architectural aesthetics. This principle drove AGC Glass Europe and Japanese companies to introduce the first glass antenna in 2020, turning windows into functional base stations. This technology was revolutionary in integrating 5G technology into buildings, improving connectivity, and preserving the exterior design.

Vodafone Supports Iraq Government on 5G Network Launch

Vodafone's Partner Markets division has entered into a consultancy agreement to support the creation and launch of a new 5G mobile operator in Iraq. The initiative, fully owned by the Iraqi government, aims to accelerate the country's digital transformation.

The consultancy project includes a Statement of Work (SOW) signed between Vodafone and Iraq's Ministry of Communications. Under the SOW, Vodafone will provide expertise in critical areas, including network design, commercial strategies, and a long-term growth plan to ensure the operator's successful launch and operation.

Petr Dvorak, CEO of Vodafone's Partner Markets division said, "The creation of a new government owned 5G operator will bring social and economic development to Iraq. Vodafone's Partner Markets team has experience working with operators around the world to develop the latest network technology and commercial strategies; we will be able to bring that expertise to Iraq, including the design of the operator and creation of a sustainable management model, which will provide an opportunity to train and develop the skills of the young Iraqi talent."

This development is part of Iraq's broader ambition to leverage 5G technology, the latest evolution in mobile networks. The adoption of 5G is expected to contribute significantly to economic growth, enhance business capabilities, and empower citizens to engage more fully in the global digital ecosystem.

"The launching of 5G technology will help the ICT sector, and other sectors in Iraq, to have digital inclusion, including health and education. This is one of the plans that the government is working heavily towards the country's digital transformation," stated Dr. Buraq A. Abdulkareem, Deputy Minister, Ministry of Communication Iraq.

Additionally, the two parties have signed a Memorandum of Understanding (MoU) to explore further services that Vodafone could provide for the operator and to finalize an appropriate management model for the collaboration.

The Digital Dilemma: Is Digital Transformation Advancing or Reversing Climate Change?

In the era of rapid technological advancement, digital transformation intends to revolutionize industries and economies. At the forefront of this advancement stands artificial intelligence (AI), a technology with the potential to mitigate greenhouse gas (GHG) emissions by 5-to-10% globally, according to the World Economic Forum. This underscores modern technologies' crucial role in reversing climate change's effects.

As the digital world advances, sustainability has emerged as a central focus in the ICT industry, urging operators, vendors, and solution providers to balance innovation with environmental responsibility.

However, current technological advancements that appear to accelerate climate change, such as big data, machine learning (ML), and AI, might be the keys to reversing its effects.

The Global Digital Transformation
Digital transformation has become the driving force of profound change in industries and human lives, altering how we live, work, and interact. Cutting-edge innovations and new network technologies have accelerated this transformation, paving the way for revolutionary strategies and solutions.

This global transformation has increased the rate of carbon emissions over the years, leading to extreme climate change. According to the GSMA's data analysis, an estimated 140 million tons of carbon dioxide equivalent (CO_2-eq) were emitted by the mobile industry's operations, accounting for around 0.3% of total global GHG emissions.

These operational emissions were mostly generated by electricity. To put this into perspective, in 2022, global operators utilized 320 terawatt hours (TWh) of electricity (around 1.3% of global electricity usage). This reflects how older, less energy-efficient network technologies like 2G, 3G, and 4G, contribute to high electricity consumption.

However, these technologies have also enabled the development of

innovations that are enhancing global climate resiliency. For example, the Geographic Information System (GIS) utilizes hazard maps to assess damages and enable mobile text alerts to relay emergency information during disasters.

Virtual and mixed realities (VR/MR) contribute to the visualization of climate impacts, paving the way for the development and adoption of catastrophe mitigation strategies.

The Internet of Things (IoT), along with AI, can predict disasters and deliver warnings through predictive analytics and real-time monitoring, ultimately saving lives from impending calamities.

The Road to Net-Zero

According to the International Telecommunication Union (ITU), the ICT industry is estimated to account for between 1.5 to 4% of total global GHG emissions, underscoring the urgent need to reduce the industry's impact on the environment.

Science-based targets have been established to guide organizations, with the Paris Agreement limiting global warming to 1.5°C. Exceeding 1.5°C may trigger multiple climate adversities, according to the ITU.

Furthermore, in 2019, the GSMA announced an ambitious goal, aiming to achieve Net-Zero emissions by 2050. According to its Mobile Net-Zero 2024 report, the number of global operators committed to near-term science-based targets as part of the Science Based Targets Initiative (SBTi) has reached 70, representing 48% of all mobile connections and 68% of revenues. The GSMA also launched the Climate Action Taskforce to strengthen collaboration between operators, agree on climate policy frameworks, and share best practices on climate action.

Additionally, leading operators from around the world have committed to reducing the environmental impact of mobile phones by reusing, repairing, and recycling devices. This comes following the release of an analysis conducted by the GSMA, which found that more than five billion mobile phones are currently unused.

In the Middle East, the Gulf Cooperation Council (GCC) Sustainability Innovation Hub was established through the collaborative efforts of the region's leading industry giants, including Ooredoo, e&, Beyon, du, stc, Zain, and Omantel.

The strategic initiative aims to achieve Net-Zero goals by decarbonizing the telecom industry and reducing its carbon footprint.

Driving a Sustainable Future

To navigate the global sustainability challenge, organizations in the ICT industry are developing innovative programs to reduce their carbon footprints and pave the way to a more sustainable future.

The GSMA's Mobile Net-Zero report underscored that 60% of operators are already planning their climate change risk and opportunity analysis, demonstrating their commitment to supporting global sustainability goals.

In the United Arab Emirates (UAE), 2024 was marked as the 'Year of Sustainability' to reinforce and strengthen its commitment to a sustainable future. Supporting the UAE's ambition to reduce environmental impact, telecom operator, du, accomplished a substantial 21% diversion of waste from landfills across its 145 site locations in the country.

Japan-based telecommunications company, NTT Group, established a sustainable vision in 2021 called the 'NTT Green Innovation Toward 2040' to achieve zero environmental impact and economic growth simultaneously through carbon neutrality.

Supporting the Japanese government's vision for 'Carbon Neutrality by 2050,' NTT Group's sustainability initiatives are focusing on reducing greenhouse gas (GHG) emissions by 45% by increasing the use of renewable energy and utilizing IOWN technology to lower energy consumption.

Telecom vendors are equally committed to the cause with Ericsson dedicated to limiting global temperature increase to 1.5°C. Meanwhile, Nokia has set an ambitious goal to achieve an 83% reduction of carbon emissions across its own operations by 2030. The Finnish telecom vendor is addressing its energy efficiency goal by leveraging 5G-Advanced and upcoming 6G network technology. Furthermore, in collaboration with 'Hack for Earth,' Ericsson launched a hackathon during COP28 in 2023, to find impactful solutions and address climate change.

Similarly, Umniah has unveiled a comprehensive sustainability program, which aims to combat climate challenges, showcasing a commitment to environmental stewardship. Highlighting the pivotal role of technology, Dr. Fang Liangzhou, Vice President and CMO of Huawei Digital Power, stated, "Technology innovation will play a central role in tackling climate change." This perspective aligns with the actions of e&, which is accelerating its climate initiatives to align with the UAE's Net-Zero Strategy.

Final Thoughts

Amidst global digital transformation, industries are at the crossroad of innovation and environmental stewardship. The global technological revolution heralds not only unprecedented growth but also significant and serious challenges.

The journey to reduce the telecom industry's carbon footprint may appear challenging yet is attainable. The collective efforts of industry drivers are crucial to reversing the increasingly dire effects of climate change.

Significant strides in achieving Net-Zero goals can be achieved by adhering to global sustainability initiatives, such as the SBTi. However, it is imperative to note that today's innovations may be the answer to accelerating sustainable goals. Innovations such as AI, IoT, and 5G networks are poised to substantially reduce the global carbon footprint.

As we move forward, it is time to view technology as a valuable ally to ensure that our digital future is environmentally conscious. TR

Redefining Connectivity with Cellular IoT

The cellular Internet of Things (IoT) market value is projected to reach USD 28.7 billion by 2028, climbing from the recorded USD 16.4 billion in 2024 at a compound annual growth rate (CAGR) of 15%, according to Juniper Research's Global Cellular IoT Market Outlook. This robust increase indicates a growing demand for advanced connectivity and digital interconnectedness.

The IoT ecosystem plays a substantial role in supporting daily lives and business operations. As 5G network technology continues to rise, the significance of IoT applications will continue to grow exponentially, delivering enhanced services, particularly in less densely populated areas.

Cellular networks are primarily situated in areas with high-density rates. However, the need for ubiquitous and extended connectivity transcends beyond the capabilities of mobile phones, resulting in the increased demand for data sharing between devices to enhance efficiency and communication.

Advancing the Global IoT Ecosystem

Driven by advancements in 5G and cellular Low-Power Wide Area (LPWA) technologies, the cellular IoT market will grow exponentially, transforming various industries and enterprises. As the market continues to demand improved network technologies, 5G is poised to generate USD 9 billion in revenue for the 5G IoT services market by 2026, according to a study conducted by Juniper Research.

Despite widespread connectivity coverage, terrestrial mobile networks cover only 20% of the Earth's surface, according to satellite communication service provider, Sateliot. This stems from the poor cellular technology coverage in areas with low population densities, such as the mountains or remote regions.

Integrating 5G with satellite is set to revolutionize connectivity in IoT applications, further connecting the unconnected. In 2023, Sateliot launched the first satellite under the 3GPP 5G Narrowband (NB)-IoT NTN Release-17 standard, offering IoT connectivity in remote areas via a small constellation of low Earth orbit (LEO) satellites. This strategic initiative enables extended and reliable coverage for devices on the move, particularly those without access to a fiber network, primarily benefitting

other verticals such as transportation, logistics, agriculture, and maritime.

5G Reduced Capability (RedCap) is poised to lead the cellular IoT market in the coming years, with Omdia projecting 963.5 million connections by 2030 and an impressive CAGR of 66%.

Emerging Challenges in Cellular IoT

Despite major advancements in cellular IoT, challenges persist. Cyberattacks or extreme weather conditions can affect connection reliability in cellular IoT connectivity. Enterprises operating in areas with poor cellular reception often face limitations in network connection, thus, affecting IoT connectivity.

The rise of wireless connections brings enhanced accessibility and convenience for businesses and users alike. However, it also amplifies the security risks associated with connected devices within the network. Attackers can compromise identities, leading to the theft of sensitive data. Attackers may also gain control of devices to exploit data, causing system failures and altering data, compromising the credibility of interconnected devices. Denial-of-Service (DoS) attacks may also be triggered, interrupting connectivity services by taking devices offline.

Furthermore, battery life remains a critical concern as many IoT devices rely on battery power. The longevity of battery life is paramount for successful cellular deployments to support connections in rural settings, particularly agriculture and maritime. Moreover, concerns regarding battery drainage pose substantial operational risks, leading to data gaps or system failures.

The complexities of cellular IoT deployments present significant hurdles for organizations. Upgrading, deploying, and maintaining existing infrastructure requires extensive assistance from service providers. Expanding on this need for specificity during the 18th edition of the Telecom Review Leaders' Summit, Hasan Alshemeili, Head of Technology Planning, du, highlighted infrastructure's potential in tailoring services, such as gaming or streaming, to specific customer needs while maintaining efficiency, noting that, "One size doesn't fit all. Organizations must adapt their systems to meet diverse user expectations."

Additionally, the IoT sector faces a skills gap and a shortage of qualified IoT experts capable of navigating the intricacies of the IoT's complex landscape. During the same panel, Rashid Al Ahmadi, COO, InfraX, proposed establishing specialized focus groups under regulatory bodies to bridge these gaps. "Technology will always be there," Al Ahmadi noted, "But success hinges on creating win-win partnerships between technology providers, operators, and end-users."

Trailblazing Breakthroughs in Cellular IoT

The massive rollout of 5G networks presents a substantial potential for the wide adoption of cellular IoT connectivity. Consequently, major telecom companies are investing heavily in 5G infrastructure to deliver unprecedented speeds and lower latency, supporting digital interconnectedness.

Notably, the cellular IoT market is predicted to transform the industrial sector, enabling interconnectivity between 'things' and people.

Telecom vendor, Ericsson, has categorized IoT connectivity into four segments to address industrial connectivity needs: massive IoT, broadband IoT, critical IoT, and industrial automation IoT. These cellular IoT use cases are supported by network slicing, which facilitates a cost-efficient, scalable, and flexible network.

In 2019, du, commercially rebranded from Emirates Integrated Telecommunications Company (EITC), launched the next-generation NB-IoT network alongside Nokia in the United Arab Emirates, enabling connections for smart city applications.

In 2020, Qualcomm introduced its 212 LTE IoT modem (dubbed the world's most power-efficient, single-mode NB2 IoT chipset), delivering enhanced performance in low-power and long-life IoT applications.

In 2023, Saudi Arabia's telecom operator, Zain KSA, launched passive IoT technology, powered by ambient energy sources.

In 2024, Qualcomm launched its Snapdragon X80 5G modem with NB-NTN satellite connectivity designed for smartphones, laptops, and industrial IoT, while Chinese technology vendor, Huawei, granted a cellular IoT Standard Essential Patents (SEPs) license, including NB-IoT, LTE-M, and LTE Cat. 1 to EDMI. Moreover, in the same year, stc Group signed a collaboration with communications solutions provider, iBASIS, to enhance global communication through IoT technology.

Meanwhile, the Middle East's cellular IoT market is set to experience exponential growth, as the region leads the early adoption of modern technologies. Major contributors to this massive growth include the UAE's Vision 2021 and Saudi Arabia's Vision 2030, which focus on integrating IoT solutions.

Final Thoughts

Cellular IoT transpires to be a significant driver in shaping the future of the digital landscape. This technology's transformative potential is bound to deliver new possibilities for innovation, revenue generation, and operational efficiency, elevating quality of life and improving business operations.

As the demand for seamless connectivity surges, technological advancements are rapidly expanding. The ongoing deployment of 5G networks will continue to support enhanced connectivity and address critical concerns in digital transformation.

The synergy of 5G and IoT promise to crystalize an intelligent and hyper-connected digital future. Looking ahead, the IoT ecosystem has the potential to surpass expectations, bringing advanced, connected technologies once confined to science fiction into everyday reality. TR

Cloud Services Registrations Witness 70% Increase in Saudi Arabia

The commercial registrations for cloud computing services in Saudi Arabia have grown by 70%, according to a report from the Ministry of Commerce.

Moreover, the report for the fourth quarter of 2024 revealed that there's been a 36% increase in the growth of commercial registrations in the application development sector, and a 12% increase in fintech solutions activity.

Cloud Computing
The Ministry noted that providing cloud computing services is one of the most prominent economic activities and promising sectors in the Kingdom, as the number of commercial registrations in this sector reached 3,005 by the end of the fourth quarter of 2024, compared to 1,759 registrations for the same period in 2023.

The Riyadh region ranked first with 1,900 registrations, followed by the Makkah region (575 registrations), Eastern Province (329 registrations), Madinah (72 registrations), and Asir (37 registrations).

Application Development
The Ministry noted that commercial registrations for application development witnessed a growth rate of 36%, recording 15,800 registrations by the end of the fourth quarter of 2024, compared to 11,600 registrations for the same period in 2023. The Riyadh region topped the list with 9,700 registrations, followed by the Makkah region (3,200 registrations), the Eastern Province (1,600 registrations), Madinah (467 registrations), and Asir (249 registrations).

Fintech
The commercial registrations for fintech solutions witnessed a growth rate of 12%, reaching 3,152 by the end of the fourth quarter of 2024, compared to the 2,795 registrations recorded during the same period in 2023. The Riyadh region led with 1,900 registrations, followed by the Makkah region (636 registrations), the Eastern Province (309 registrations), Madinah (86 registrations), and Qassim (44 registrations).

Interestingly, the total number of commercial registrations in the Kingdom has reached more than 1.6 million, 30% of which were registered by institutions owned by women, and 38% of which were registered by institutions owned by the youth.

Telecom operators like Zain KSA, stc, and Mobily are actively working with vendors such as Nokia, Huawei, and Ericsson on the development of cloud infrastructure in the country.

Qatar's AI Market Projected to Hit USD 567 Million in 2025

This surge in AI adoption is being driven by Qatar's strategic investments and technological transformations, reflecting the country's commitment to innovation.

Technology experts emphasize that companies in Qatar are strategically focused on "transforming AI enhancement" and deploying innovative solutions to maintain high data integrity and security standards.

Economic Implications
AI is predicted to boost Qatar's economic growth by 2.3% and generate USD 5 billion (QAR 18.22 billion) in revenue by 2030, solidifying the country's journey to becoming a global hub in AI innovation.

Driven by modern technologies, such as AI and the Internet of Things (IoT), the substantial progress in the country's digital landscape is poised to increase job opportunities and support Qatar's Digital Agenda 2030. This strategic initiative is set to guide the country's digital economy through technological evolution, sustainability, and economic diversification.

Statista's report also projects a compound annual growth rate (CAGR) of 27.93% for Qatar's AI market between 2025 and 2030, potentially attaining a market volume of USD 1.943 billion by the end of the decade.

The Global AI Market
The report indicates that AI's global market size is projected to amount to USD 243.70 billion (QAR 888.22 billion) in 2025, with a CAGR of 27.67% between 2025-2030, and ultimately reaching USD 826.70 billion (QAR 3013.10 billion) by the end of 2030, marking the technology's widespread adoption.

The United States is set to remain the largest AI market globally, with an estimated size of USD 66.21 billion (QAR 241.32 billion) in 2025.

Qatar's AI Strategy
Qatar's strategy in advancing AI focuses on developing its data centers and management capabilities to encourage global investments and multinational businesses. The country is also harmonizing AI regulations with the US and Europe to draw new tech entrants and sustain stability in cross-border trade.

Nokia Achieves 7,000-Patent Milestone, Powering the 5G Revolution

Nokia has achieved a significant milestone, surpassing 7,000 patent families deemed essential for 5G, with further advancements on the horizon.

Nokia's fundamental inventions in 5G include groundbreaking innovations in 5G radio protocol design, 5G security, and interface technologies that define how smartphones, connected cars and other connected devices interact with 5G networks.

Patrik Hammarén, Acting President of Nokia Technologies, said, "Nokia's substantial investment in cellular R&D and standardization continues to pay off. We have now reached the landmark of 7,000 high-quality patent families declared as essential to the 5G standard, and Nokia's active pre-standardization work puts us in a leading position for 6G standardization which begins later this year.

"Thanks to all the Nokia inventors and our patenting professionals for their hard work and problem-solving. Together, they continue to help Nokia maintain its technology leadership and drive cellular innovation forward."

Nokia's Industry-Leading Patent Portfolio

Nokia's industry-leading patent portfolio is built on more than EUR 150 billion invested in R&D and standardization since 2000 and is composed of over 20,000 patent families (each family can comprise several individual patents).

Any device that connects to a cellular network uses Nokia's patented technology and over 250 companies have secured a license to Nokia's patented technologies. These technologies are the essential building blocks for entire industries, including mobile devices, consumer electronics, connected vehicles, IoT devices and solutions, video streaming, and more.

Nokia contributes its inventions to open standards in return for the right to license them on fair, reasonable, and non-discriminatory (FRAND) terms. Companies can license and use these technologies without the need to make their own substantial investments in the standards, fueling innovation and the development of new products and services for consumers.

Apptium and Guardian SafetyNet: Transforming Public Safety with 5G-Powered Marketplace

Apptium, a leader in technology and innovation, is proud to announce their strategic partnership with Guardian SafetyNet (GSN) for the launch of a digital marketplace designed specifically to provide first responders in Canada with immediate access to essential resources, tools, and services needed to enhance their response capabilities and improve public safety.

GSN is a collaborative effort between first responders, industry, and academia, dedicated to delivering reliable, resilient, nationwide, broadband 5G wireless services that will enable first responders to carry out tasks more effectively, saving lives of all Canadians, including their own.

"GSN is excited to be combining forces with Apptium on a leading all digital marketplace to enable Canadian first responders' secure and instantaneous services to better protect themselves and all Canadians. Having the right tools and resources is critical when seconds saves lives," said Ibrahim Gedeon, Executive Director, Guardian SafetyNet.

Apptium Marketplace for First Responders

The Apptium Marketplace for First Responders is a dynamic platform aimed at supporting firefighters, paramedics, police officers, and emergency medical services (EMS) teams across the country. With a focus on convenience, speed, and reliability, this innovative solution aggregates critical equipment, supplies, and technology solutions into one easy-to-navigate platform, providing first responders with authenticated and secure access to everything they need to perform their duties effectively and efficiently.

Municipalities stand to gain numerous operational, financial, and strategic benefits. By improving the efficiency of resource procurement, enhancing the quality of emergency response, and ensuring greater cost-effectiveness, municipalities can help first responders save lives and protect communities more effectively. Moreover, such a platform boosts innovation, enhances transparency, and provides municipalities with valuable tools to improve their overall emergency preparedness and public safety infrastructure.

Vodafone Sells Italian Unit to Swisscom

British mobile phone giant, Vodafone, has completed the sale of its Italian unit to Swisscom for EUR 8 billion euros (USD 8.3 billion) as part of a Europe-wide restructuring.

"The completion of the sale of Vodafone Italy is the final step in the reshaping of Vodafone's European footprint," a spokesman said in a statement. It follows agreements to sell Vodafone's Spanish division and the merger of its UK unit with rival, Three, owned by Hong Kong conglomerate, CK Hutchison.

Vodafone added that it will continue to provide certain services to Vodafone Italy for up to five years. Proceeds from the Swiss transaction will go towards reducing Vodafone's net debt, while up to EUR 2 billion will be redistributed to shareholders.

The company previously rejected a proposal from iliad Group to merge their Italian businesses, before beginning advanced talks with Swisscom in March.

Vodafone has undergone continuous transformation under the leadership of Chief Executive Officer, Margherita Della Valle, to help slash costs. In 2023, the group cut more than 10% of its global workforce.

Last month, UK regulators approved a tie-up between Vodafone and Three—set to create Britain's biggest mobile operator—after the companies pledged to invest billions of pounds to roll out a high-speed 5G network across the country.

Vodafone, which returned to profit in the first half of 2024, saw its share price edge higher on London's top-tier FTSE 100 index following the announcement.

Safety First: Rogers Nears Completion of Highway 16 5G Expansion

Rogers Communications has activated five new cellular towers along British Columbia's Highway 16, providing 911 access for all travellers and 5G wireless coverage for its customers.

The new towers are part of an ongoing rural wireless service expansion project with the province's Connecting British Columbia program, administered by Northern Development Initiative Trust, and the federal Universal Broadband Fund. This corridor between Prince Rupert and Prince George honors the memory of the many Indigenous women and girls who have disappeared or have been found murdered along the route.

"With nine towers in-service, we are proud to provide 166 kilometres of 5G cellular coverage on Highway 16, closing most of the wireless gap between Prince Rupert and Prince George," said Mark Kennedy, Chief Technology Officer.

With the latest additions, the Highway 16 project is near to completion, with nine out of 11 towers now operational. Once the Highway 16 project is completed, Rogers will provide 252 kilometers of new cellular coverage along Highway 16, closing gaps to ensure continuous coverage along the entire 720-kilometer corridor.

This initiative will establish a safer travel environment and fulfill one of the recommendations in the 2006 Highway of Tears Symposium report to enhance safety for Indigenous women and girls.

The Highway 16 project is part of Rogers' commitment to expanding services in underserved rural, remote, and Indigenous communities in B.C. and across Canada. Rogers has invested over $40 billion in its networks over the last decade and is investing $4 billion in capital investments this year. Rogers 5G, Canada's largest and most reliable 5G network, now reaches more than 2,500 communities.

Italy, Spanish Fund Make USD 733 Million Bid for Telecom Italia Subsea Unit

Italy's Treasury and Spanish fund Asterion have made a 700 million euro ($733 million) joint binding offer for Telecom Italia's (TIM) (TLIT.MI), opens new tab submarine cable unit Sparkle, the ministry and the former phone monopoly said.

The sale is part of infrastructure asset sales by TIM Chief Executive Pietro Labriola, aimed at cutting the company's debt and focusing on its services business.

The ministry is bidding with Retelit, an Italian fiber network operator owned by Spanish infrastructure fund Asterion.

The offer, which confirmed a preliminary valuation for the unit, is valid until January 27, TIM and the ministry said in separate statements.

"The deal would grant TIM additional resources to revamp its business and cut debt, without hitting its cash generation profile", broker Intermonte said in a daily note.

Rome is keen to secure control of Sparkle, a firm deemed of strategic importance due to its cable network of more than 600,000 km (372,823 miles) that transmits information between countries in Europe, the Mediterranean and the Americas.

TIM has scheduled a board meeting to start discussing the offer, people with knowledge of the matter said.

As a result of the sale, the Treasury is expected to have a stake of about 70% in Sparkle, with Asterion holding the remainder, the people said.

Sweden Leads the Way in 6G Satellite Integration

Sweden is advancing the future of telecommunications with a groundbreaking research initiative designed to integrate satellite communications with 6G networks. The project, backed by a SEK 60 million (USD 5.4 million) grant from the Swedish Foundation for Strategic Research (SSF), will establish a multidisciplinary research center at the KTH Royal Institute of Technology.

National Effort, Global Reach
The project, named Sustainable Mobile Autonomous and Resilient 6G SatCom, brings together some of Sweden's top space and technology innovators, including Ericsson, Saab, Ovzon, Beyond Gravity, Forsway, Satcube, and the Swedish Space Corporation. Other notable contributors to this ambitious venture include Northern Waves, PrimeKey, and AirForestry.

The initiative will also benefit from the expertise of international industry leaders such as Eutelsat OneWeb, Airbus, Viasat, and Thales Alenia Space, as well as renowned universities worldwide.

Vision for the Future
The SSF outlined the project's ambitious vision: 'Mobile communication services seamlessly available to anyone with a 6G device, anywhere, anytime.' With a strong focus on sustainability, energy efficiency, and reliability, the research aims to develop a 6G network that is as resilient as it is groundbreaking.

The research will focus on critical aspects of 6G integration, including advancing technologies for 6G devices and satellites to drive hardware innovation. It will also work on creating methods to mitigate signal loss and interference, enhancing signal processing capabilities. Another key area is the development of systems to unify terrestrial and satellite communications, ensuring seamless land-space network integration.

Additionally, the initiative aims to design intelligent tools that combine communication, localization, and remote sensing powered by cutting-edge artificial intelligence (AI).

Driving Georgia's Digital Transformation: Cellfie Mobile Partners with Vodafone

Cellfie Mobile, a Georgian mobile operator, and Vodafone Group have announced a new non-branded partnership agreement.

Under the agreement, Cellfie Mobile aims to expand its services to offer a more comprehensive digital experience for its customers, leveraging Vodafone's expertise and advisory services.

The Georgian telecommunications market is rapidly evolving, with increasing demand for high-speed connectivity and innovative solutions. Georgia's swift digital transformation calls for competitive services to meet customer expectations.

Petr Dvořák, CEO of Vodafone Partner Markets, added: "We look forward to supporting Cellfie, an agile and dynamic organization that is ambitious about delivering better connectivity for the people of Georgia."

Mariam Kopadze, CCO of Cellfie Mobile, said, "Through this partnership, Cellfie Mobile plans to leverage Vodafone's extensive experience in digital innovation to launch a suite of new services for our customers.

Vodafone's Partner Markets team forms strategic partnerships with local operators all over the world to extend the Group's reach into growing markets, sharing best practice in telecoms net-work design, operational efficiency and customer support. Vodafone now has 46 Partner Mar-kets across the world.

Frontier Stockholders Approve Verizon's Acquisition

Approximately 63% of Frontier Communications' stockholders have approved the acquisition by Verizon, including ten of the company's top twelve stockholders.

On September 2024, Frontier and Verizon entered into a merger agreement, whereby in Verizon would acquire Frontier in an all-cash transaction valued at USD 20 billion. Frontier stockholders will receive USD 38.50 per share in cash.

"Today's vote demonstrates the strong value of the fiber business we have built over the past four years and our ability to expand access to reliable connectivity for more Americans," said Nick Jeffery, President and Chief Executive Officer, Frontier. "We look forward to closing this transaction by the first quarter of 2026 and beginning to deliver our premium fiber offering to millions more customers across our combined network."

In line with the Q3 2024 financial report, Chairman and CEO Hans Vestberg highlighted that the pending acqusition of Frontier is part of setting up Verizon for "disciplined growth, now and into the future."

This acquisition aligns with the "favourable course" anticipated by industry investors to utilize Frontier's assets. Since December 2023, Frontier Executive Chairman John Stratton has emphasized that the company is open for discussions of conducting a strategic review of the business and considering various options, which include joint ventures and a sale of certain assets.

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