TELECOM Review
EUROPE
THE TELECOMS INDUSTRY MEDIA PLATFORM
telecomrevieweurope.com

POLAND'S TELECOM JOURNEY: Coverage, Expansion, and the Road Ahead

Reaching for the Stars: European Telecom's Role in Space Initiatives

Wired for Green: How Renewable Energy is Energizing Europe's Telecom B2B Sector

Beyond "Das Auto": AI's Impact on the German Car Industry

TELECOM Review GROUP

telecomreviewgroup.com

GLOBAL FOOTPRINT
REGIONAL INFLUENCE
DIGITAL REACH


TELECOM Review
THE TELECOM INDUSTRY'S MEDIA PLATFORM
telecomreview.com
TELECOM Review
ASIA PACIFIC
THE TELECOMS INDUSTRY MEDIA PLATFORM
telecomreviewasia.com
AFRICA
TELECOM Review
AFRIQUE
THE TELECOM INDUSTRY'S MEDIA PLATFORM
LA PLATE-FORME MEDIA DE L'INDUSTRIE TELECOM
telecomreviewafrica.com
TELECOM Review
AMERICAS
THE TELECOMS INDUSTRY MEDIA PLATFORM
telecomreviewamericas.com
تيليكوم ريفيو
منصة قطاع الاتصالات والتكنولوجيا
TELECOM Review
telecomreviewarabia.com
TELECOM Review
EUROPE
THE TELECOMS INDUSTRY MEDIA PLATFORM
telecomrevieweurope.com
TELECOM Review
virtual panels
TELECOM Review
TV
telecomreview.tv
SUMMIT
TELECOM Review
www.telecomreview.com/summit

TELECOM Review EUROPE
THE TELECOMS INDUSTRY MEDIA PLATFORM
telecomrevieweurope.com

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.

READ MORE

Advancing AI Voice Technology for Emotional Connection

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.

READ MORE

Germany Advances Autonomous Driving with Innovative C-ITS Strategy

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

READ MORE

Study Proposes Radio-Frequency Localization to Improve Smartphone AR Accuracy

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

READ MORE

Holiday Season Attacks Powered by AI

This holiday season, the retail industry is anticipating a rise in cyberattacks beyond the usual spike.

READ MORE

Investor Appetite for AI Ventures Grows

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

READ MORE

Founder of Telecom Review Group
CEO of Trace Media International
Editor in Chief
Toni Eid
toni.eid@telecomreviewgroup.com

Journalists
Monika Jeleniak
monika@telecomrevieweurope.com
Clarissa Garcia
clarissa@telecomreviewasia.com

Editorial Team
Christine Ziadeh, Corrine Teng, Clarissa Garcia, Elvi Correos, Jeff Seal, Jessica Bayley, Jonathan Pradhan, Marielena Geagea, Mira Jabbour, Monika Jeleniak, Novie Nuñez, Pia Maria El Kady, Sherizze Acot

Copy Editor
Jessica Bayley

Director of Content for Media & Events
Christine Ziadeh
christine@telecomreviewgroup.com

Advertising Enquiries
Ershad – Sales Director – Group
ershad@telecomreviewgroup.com

Responsible Manager
Nada Eid

Chief Marketing Officer
Issam Eid
issam@telecomreviewgroup.com

Operations Director – Group
Anna Chumak

Graphic Designer
Vanessa Haber

News
Provided in cooperation with AFP, the global news agency

Published by

Trace Media Ltd.
Zouk Mikael, Lebanon,
Kaslik Sea Side Road,
Badawi Group Building, 4th Floor,
P.O. Box 90-2113, Jdeidet el Metn
Tel. +961 9 211741
M. +961 70 519 666

Trace Media FZ.LLC.
Dubai Media City, UAE
Building 7, 3rd Floor, Office 341
P.O. Box 502498, Dubai, UAE
Tel. +971 4 4474890
M. +971 55 639 7080

Year 01 | Issue 01

Poland's Telecom Journey : Coverage, Expansion, and the Road Ahead

Poland's telecom industry is a powerhouse in Central and Eastern Europe, blending fierce competition with cutting-edge innovation.

Poland boasts one of Europe's most modern telecom infrastructures, charting an exciting path forward. By fostering collaboration among telecom operators, government bodies, and technology providers, the country is ensuring a unified approach to advancing digital connectivity and infrastructure.

Market Overview

Home to over 38 million people, the Polish market thrives on its dynamic mix of fixed-line, mobile, broadband, and pay-TV services, which continue to expand. The rise of 4G and the impending 5G revolution have supercharged mobile demand, while key players such as Orange Polska, T-Mobile Polska, Play, and Plus are at the forefront of this competitive landscape.

As of 2023, Orange Polska continues to lead with comprehensive 4G and 5G rollout plans, while T-Mobile Polska is making significant strides in urban areas, particularly with its 5G deployment. Play, known for its aggressive pricing and innovative service models, remains a strong competitor in the Polish mobile market. Plus, one of Poland's biggest telecom operators continues to expand its presence, focusing on offering reliable mobile services and high-speed internet.

Together, these companies are laying the foundation for the nationwide adoption of 5G technology, poised to revolutionize industries nationwide. As Dr. Ustasiak-Stępińska, President of the Polistratos Institute for Systemic Innovation, noted in an exclusive interview with Telecom Review Europe, "The Polish market is very competitive. We have one of the lowest prices in the European Union for telecommunication services, and the quality of services is very high." This combination of affordability and high service quality is a defining feature of Poland's telecom sector, contributing to its continued success and growth.

Poland's strong economic foundation also plays a crucial role in developing its telecom sector. "When we look at GDP, we are currently one of the strongest economies in the European Union, and the Polish economy is quite innovative," identified Dr. Ustasiak-Stępińska. She further emphasized Poland's resilience, noting that the country not only survived the 2008 economic crisis as a 'Green Island' but also emerged strongly from the pandemic, reflecting its adaptability and strength.

This economic stability and forward-thinking approach also extend to Poland's regulatory environment. The country has taken proactive steps to balance innovation with regulatory compliance. A prime example is the implementation of the Artificial Intelligence Act, making

> The rise of 4G and the impending 5G revolution have supercharged mobile demand, while key players such as Orange Polska, T-Mobile Polska, Play, and Plus are at the forefront of this competitive landscape

Poland the first EU member to enact this landmark legislation. This commitment to regulatory foresight reflects Poland's determination to lead the way in digital innovation.

Poland's Digitization Strategy for 2035 outlines ambitious goals, including equipping 85% of the population with essential digital skills and ensuring that public services are widely available in digital formats. Krzysztof Gawkowski, the Polish Deputy Prime Minister and Minister of Digitalization, further emphasized the strategy's transformative impact, stating, "This strategy represents Poland's most ambitious digital transformation plan to date; we are not just digitizing services, we are fundamentally transforming how our society and economy function in the digital age."

Infrastructure and Network Coverage

Today, Poland boasts a high mobile penetration rate, which, according to Statista, reached nearly 140% in 2023, indicating that many individuals maintain more than one mobile subscription. Additionally, the smartphone penetration rate has grown significantly, rising from approximately 60% in 2016 to about 86% in 2021, with projections suggesting it will reach around 88% by 2025, according to Mordor Intelligence.

Alongside these developments in mobile connectivity, Poland's fixed networks in 2024 provide a wide range of speeds, from 100 Mbps to 1 Gbps. The 100 Mbps network is already widely available, while the 300 Mbps and 1 Gbps networks are growing rapidly, particularly in urban areas, to meet the increasing demand for high-speed services like HD streaming and online gaming.

The country is also making significant progress in its mobile network infrastructure. T-Mobile is currently leading in 5G download speeds, reaching 371.6 Mbps, with upload speeds of 61.4 Mbps.

> Poland's Digitization Strategy for 2035 outlines ambitious goals, including equipping 85% of the population with essential digital skills and ensuring that public services are widely available in digital formats

LTE technology remains essential, benefiting from enhanced frequency band coverage, including the 700 MHz and 3.5 GHz bands, which boost 4G and 5G services.

The Polish government has made significant progress toward the 5G rollout, auctioning 5G spectrum licenses to telecom operators in 2020. While full 5G deployment has not yet been achieved, the industry is expected to expand rapidly in the coming years, particularly in urban areas.

With 5G enabling innovations such as IoT, smart cities, and autonomous vehicles, Polish telecom providers need robust tools to deliver on these promises. "Low-code and no-code platforms are game changers," explained Rafał Lenczewski, CEO of Pretius. "They accelerate development, reduce costs, and standardize processes while enabling co-creation with clients to build solutions that meet their needs quickly and effectively."

> By 2025, Poland aims to achieve universal high-speed broadband access, reinforcing its leadership in regional digital infrastructure

Poland's major telecom providers, including Orange Polska and T-Mobile Polska, have made notable progress in rolling out 5G networks. Orange Polska has already activated 5G in over 280 cities and is working to extend it to nearly 3,000 base stations across 350 cities and towns by the end of 2024. T-Mobile Polska has introduced its 5G Bardziej network, now available in over 330 locations, and aims to cover 40% of Poland's population by year's end. It has extended its 5G coverage, reaching 60% of the country and serving 23 million people.

Broadband Connectivity: A Key Priority

Broadband connectivity is a cornerstone of Poland's economic strategy, aligned with the EU's Gigabit Society goals. The national broadband plan aims to achieve universal 100 Mbps coverage by the end of 2025, gigabit connectivity in key socio-economic hubs, and 5G along significant routes and urban centers.

Poland has made significant progress, with over 60% of households accessing high-speed fiber-optic broadband by 2023. This technology, replacing copper-based DSL, supports growth in e-commerce, education, and telemedicine sectors.

A collaborative 5G Strategy Agreement is supporting further development, with strong regulatory backing from the UKE. Furthermore, the Operational Programme Digital Poland (OPDP) is focusing on expanding broadband access, e-services, and digital skills. The Recovery and Resilience Plan (RRP) is funding green energy, healthcare, educational reforms, and digitization as part of EU recovery efforts. Meanwhile, the European Fund for Regional Development (EFDD) supports regional cohesion through infrastructure, innovation, and urban projects, ensuring balanced growth across Poland.

By 2025, Poland aims to achieve universal high-speed broadband access, reinforcing its leadership in regional digital infrastructure.

Challenges Ahead: Digital Divide and Cybersecurity Concerns

One of the most pressing issues facing Poland's telecom sector is the digital divide between urban and rural areas. While major cities such as Warsaw, Kraków, and Gdańsk boast state-of-the-art telecom infrastructure, rural regions remain underserved in terms of both infrastructure and digital literacy.

Dr. Ustasiak-Stępińska pointed out that the digital divide is not only due to the availability of infrastructure but also because of low motivation and awareness in these areas. "We need to educate people about digital services because the other reason why underserved areas are underserved is not only due to the availability of infrastructure but also peoples' motivation to use digital services."

Alongside this, cybersecurity has emerged as an increasingly

critical concern. As Poland's telecom infrastructure becomes more interconnected, the risk of cyberattacks grows. The protection of sensitive data and critical telecom infrastructure is a top priority for both the government and telecom providers.

Colonel Łukasz Wojewoda, Director of the Cybersecurity Department at the Ministry of Digital Affairs, emphasized that the National Cybersecurity System (Krajowy System Cyberbezpieczeństwa (KSC)) in Poland is a framework designed to protect the country's critical infrastructure and enhance the overall cybersecurity landscape. "Poland is considered a leader in cybersecurity for a reason—we have excellent experts, not only in technological fields but also in areas related to cybersecurity, with whom we share knowledge with other countries."

Established by the Act on the National Cybersecurity System, which came into force in 2018, the KSC aims to strengthen Poland's defense against cyberattacks and ensure the security of essential services. It aligns with European Union regulations and contributes to maintaining a high level of resilience in Poland's cybersecurity sector.

The country has made significant investments in bolstering its cybersecurity capabilities, collaborating closely with international organizations such as NATO and the EU to improve threat intelligence and response mechanisms.

Future Prospects on the Horizon

Poland's telecom sector is poised for continued growth, driven by the introduction of 5G technology. The enhanced capabilities of 5G networks will support innovations in IoT, autonomous vehicles, and other emerging technologies, further boosting economic growth.

Urban hubs like Warsaw, Wroclaw, and Poznań are already exploring advanced city technologies such as connected infrastructure, traffic management systems, and energy-efficient solutions. Telecom companies are working closely with local governments to implement these technologies, with partners like Emitel

playing a key role in enhancing urban infrastructure.

The country's growing influence in the telecom industry is already recognized globally. For instance, Comarch won the Telecom Review Excellence Award for 'Best Digital Transformation Provider–Middle East' in 2024, highlighting its role in optimizing telecom infrastructure worldwide. Its Core OSS systems are driving digital transformation, automating service provisioning, and supporting the rollout of technologies like 5G and Network Function Virtualization (NFV).

Organizations like Fundacja Digital Poland also play a vital role in shaping the country's digital future. For example, Poland's Digitalization Strategy 2035 not only diagnoses challenges but also actively contributes to the creation and development of Poland's digital landscape, guiding the country towards a more connected and digitally advanced future within the EU and worldwide.

Paving the Way for a Connected Future

Poland's telecom landscape is transforming remarkably, driven by cutting-edge advancements in mobile connectivity, broadband infrastructure, and digital innovation. The ongoing rollout of 5G networks, the rapid expansion of fiber-optic broadband, and the growing focus on cybersecurity are reshaping the sector, positioning Poland as a key player in the region.

As the nation tackles challenges such as regional disparities and regulatory complexities, it is well on its way to becoming a leader in telecom innovation across Central and Eastern Europe. With continued infrastructure modernization, the future promises to benefit consumers and businesses, fueling Poland's digital economy and supporting sustainable growth. TR

> The country has made significant investments in bolstering its cybersecurity capabilities, collaborating closely with international organizations such as NATO and the EU to improve threat intelligence and response mechanisms

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

Dr. Bilel Jamoussi, Deputy to the Director and Chief of Telecommunication Standardization Policy Department, ITU (TSB)

ITU's Dr. Bilel Jamoussi Identifies the Need to Keep Pace with Rapid Technological Advancements

In an exclusive interview with Telecom Review during the 18th edition of the Telecom Review Leaders' Summit, Dr. Bilel Jamoussi, Deputy to the Director and Chief of Telecommunication Standardization Policy Department at ITU Telecommunication Standardization Bureau (TSB), identified the need for forward-thinking strategies regarding the future of digitalization and elaborated on ITU's role in this technological evolution.

With the rapid advancement of technologies like AI, IoT, and 6G, how is ITU keeping pace with innovation?

ITU remains at the forefront of innovation thanks to its unique and collaborative membership ecosystem. The organization unites 194 member states, encompassing over 1,000 companies driving research, development, and the deployment of cutting-edge networks and solutions, as well as nearly 200 academic and research institutions.

This diverse community serves as the backbone of ITU's innovative standards. As we approach ITU's 160th anniversary next year, this collaboration continues to ensure ITU remains agile in developing standards for emerging technologies like artificial intelligence, the Internet of Things, 5G, 6G, fiber-optic connectivity, and beyond.

What are the steps being taken to strengthen global cooperation in creating standards that address cybersecurity threats and ensure trust in digital communication systems?

One of ITU's key contributions is the evolution of the X.509 standard for public key infrastructure (PKI). First published nearly 30 years ago, it has continuously adapted to protect network traffic against new threats, including advancements like quantum key distribution (QKD) in the quantum era.

AI also plays a critical role in cybersecurity. While it can pose threats to communication systems, it equally offers solutions such as malware detection, spam call filtering, and network protection.

The partnership between the private sector and governments is essential for building trust in telecom and ICT equipment, fostering a collaborative approach to safeguarding digital infrastructure.

In your opinion, what are the biggest challenges in telecommunication standardization over the next decade, and how is ITU preparing to address them?

ITU is tackling emerging challenges with foresight and collaboration. At the recent World Telecommunication Standardization Assembly (WTSA-24) in New Delhi, members adopted eight new resolutions, reflecting key priorities such as artificial intelligence, metaverse technologies, digital public infrastructure, vehicle communication systems, and emergency communications.

These advancements will shape the future of the digital world, however, ensuring inclusivity is paramount. ITU is committed to leaving no one behind as it develops international standards to support this evolving digital landscape. TR

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 leveraging 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

2G and 3G in Europe: Challenges and Transitions

Across Europe, the gradual phasing out of 3G and 2G networks has ignited a wave of transformation in the telecommunications industry. While these legacy networks are becoming obsolete in the face of advanced 4G and 5G technologies, many users remain heavily reliant on them; consequently, operators and regulators are navigating a complex balancing act between modernization and user accessibility.

A July 2024 report from the Global Mobile Suppliers Association revealed that over half of global 2G and 3G network shutdowns have occurred in Europe, underscoring the region's pivotal role in this transition.

Europe's Transition Away from Legacy Networks

Europe is a global leader in decommissioning outdated networks, with Nordic countries and the Netherlands leading the charge. In these markets, reliance on 3G and 2G is minimal, reflecting robust infrastructure investment in 4G and 5G. For instance, users in Norway, Finland, Denmark, and Sweden do not frequently use 2G or 3G connections.

In stark contrast, countries like Moldova, Bosnia and Herzegovina, Malta, and Albania still report significant dependence on 3G networks. Moldova leads the pack, with users spending 18.9% of their time on 2G or 3G networks—the highest proportion in Europe. In Albania, ONE network users spend 15.3% of their time on 3G networks, significantly more than users utilizing other operator networks in the country.

The divergence between markets highlights varying levels of readiness in sunsetting these technologies. Wealthier nations with robust digital ecosystems have made strides in replacing legacy systems, while others face infrastructure gaps, regulatory hurdles, and the challenge of accommodating users in rural or underserved areas.

The UK's Mixed Approach to 3G Shutdowns

The UK has been at the forefront of 3G shutdowns, with operators like Vodafone and EE leading the way. Vodafone's abrupt 3G switch-off, however, revealed an unintended consequence: a rise in 2G usage. This was particularly pronounced because Vodafone users initially relied more heavily on 3G than those of EE.

Although transitioning to newer networks brings cost savings, spectrum efficiency, and energy benefits, abrupt changes can disrupt user connectivity. For Vodafone UK, this included drops in network availability and service quality for users without 4G-enabled devices. Such outcomes underscore the importance of phased transitions and consumer education to mitigate the impacts.

The IoT Factor and Unique Challenges

An often-overlooked obstacle in phasing out 2G and 3G networks is their continued use in Internet of Things (IoT) applications. From smart meters to elevators, these networks underpin many business-critical operations. For instance, nearly half of France's elevators rely on 2G or 3G for communication, prompting the French Elevator Federation to lobby for delayed shutdowns.

In addition to IoT challenges, a small number of legacy devices still rely on circuit-switched voice, which 4G and 5G cannot support without Voice over LTE (VoLTE). Shutting down both 2G and 3G networks without suitable replacements for such devices risks breaching regulatory obligations and alienating vulnerable users.

Balancing Network Shutdowns Across Europe

Across the continent, the approach to legacy networks varies widely. In countries like Luxembourg and Greece, where 3G networks have already been retired, reliance on 2G persists. Luxembourg leads in 2G usage, with users spending 4.5% of their time on the network. This trend underscores the ongoing utility of 2G for basic communication in rural areas and its relatively low operational costs.

Meanwhile, Poland and Spain exemplify how reliance on 3G varies even within markets. In Poland, Plus users spend 16.8% of their time on 3G—significantly higher than Orange's 5.4%. Similarly, Spain's operators report 3G usage ranging from 9% on Yoigo networks to just 1.1% on Vodafone networks. These discrepancies highlight how operator strategies and investment levels impact user experiences.

Lessons from Leading Markets

The Nordic countries and the Netherlands offer valuable insights into successful transitions. By prioritizing 4G and 5G deployment, these markets have minimized reliance on legacy networks. Their proactive approach—including banning the sale of 3G-only devices, withdrawing outdated plans, and educating users—serves as a model for other regions navigating this shift.

In addition to technical upgrades, collaboration among operators, regulators, and industry stakeholders is crucial. For example, governments can incentivize IoT device upgrades or extend support to vulnerable populations transitioning to modern networks.

For mobile operators, phasing out 3G and 2G is an essential step to secure a future dominated by high-speed, energy-efficient networks. Yet, the process remains fraught with challenges. Striking a balance between technological progress and user inclusivity will require careful planning, significant investment, and a commitment to minimizing disruptions.

As Europe continues to lead the way in this global transition, the lessons learned from its successes and setbacks will undoubtedly shape the roadmap for other regions still navigating their journey away from legacy networks. By prioritizing collaboration and user-centric strategies, the industry can achieve a future where every connection is faster, more reliable, and more sustainable. TR

Reaching for the Stars: European Telecom's Role in Space Initiatives

Telecommunications companies are increasingly exploring the possibility of space-based initiatives as the integration of terrestrial and satellite networks becomes essential for the next generation of connectivity. The convergence of space technology and telecom enables seamless global coverage, enhances network resilience, and addresses challenges like rural connectivity and disaster recovery.

European telecom giants, supported by frameworks like the European Space Agency's (ESA) Space for 5G/6G & Sustainable Connectivity program, are at the forefront of these efforts. Through these collaborations, European telecom operators are bridging the gap between terrestrial and space communications, driving global standards, promoting sustainability, and maintaining Europe's competitive edge in the evolving digital landscape. Their efforts are shaping the future of connectivity by extending telecommunications beyond Earth's boundaries.

Sharing his exclusive insight on advanced communication networks with Telecom Review, Ari Banerjee, Senior Vice President, Strategy, Netcracker Technology, noted, "The next generation of telecom technology is revolutionizing the way we live, work and think. With faster transmission speeds, higher bandwidth and reduced latency, advanced communications networks, such as 5G and the rapidly growing satellite communications sector, offer nearly limitless possibilities."

Launching the Future of Space-Based Connectivity

At MWC Barcelona 2024, the European Space Agency (ESA) and GSMA Foundry unveiled a groundbreaking partnership aimed at redefining the landscape of global connectivity through the seamless integration of satellite and terrestrial networks. This ambitious collaboration is set to spearhead innovation in communication technologies, supported by funding opportunities of up to EUR 15 million to foster advancements in the mobile and satellite industries. By encouraging the development of hybrid networks, the initiative aspires to create new revenue streams, enhance global connectivity, and enable resilient communication solutions for the future.

The partnership's multi-faceted objectives and industry-specific challenges are designed to stimulate innovative projects in the satellite and telecommunications fields. These challenges will catalyze groundbreaking solutions, with the first round of funding opportunities expected to achieve EUR 15 million in investments.

Recognizing the importance of knowledge transfer, ESA and GSMA Foundry will launch a new GSMA Advance training course tailored to industry professionals. This program aims to equip participants with the skills and expertise to navigate the increasingly complex and integrated satellite and terrestrial network ecosystem. This initiative will prepare the telecommunications workforce for the rapidly evolving technological landscape.

The entities will further establish a Non-Terrestrial Network (NTN) Community. This collective will unite critical stakeholders, including mobile and satellite operators, fostering collective collaboration on innovative projects, consequently, shaping the future of NTN technologies. By bringing together industry leaders and experts, the community will act as a think tank to develop strategies, address challenges, and ensure the successful integration of terrestrial and non-terrestrial networks.

Furthermore, European nations are investing in resilient satellite networks to safeguard communications against cyber threats and ensure operational continuity during crises. For example, the European Union's GOVSATCOM initiative focuses on providing secure satellite communication services for government and military purposes.

Futuristic Connectivity

One of ESA's most significant telecom collaborations is its partnership with Deutsche Telekom,

which solidified its commitment to building hybrid networks though a joint Memorandum of Understanding (MoU). The partnership focuses on creating seamless connectivity across terrestrial, aerial, and satellite systems, aiming for more resilient and secure communication solutions to address future needs, particularly during network disruptions.

The initiative envisions using non-terrestrial networks (NTNs) to maintain connectivity in cases where ground-based infrastructure is compromised. Satellites or stratospheric platforms, such as high-altitude balloons or solar-powered gliders, could seamlessly replace damaged terrestrial networks, thus, ensuring continued communication for affected individuals or rescue teams.

NTNs enhance data-intensive operations like satellite imaging and Earth observation, enabling seamless 5G/6G integration for high-speed, low-latency communication. They also ensure resilient pathways, which are critical for space missions. NTNs also support IoT and M2M communication for autonomous systems, reduce costs through shared infrastructure, and drive innovation by leveraging AI and edge computing, making space exploration more efficient and accessible.

Furthermore, NTNs combine space-based satellites and stratospheric platforms, known as High-Altitude Platforms (HAPS), with ground-based networks. HAPS technologies include high-altitude balloons, airships, and solar-powered gliders capable of operating for extended periods. Together with satellites, these platforms aim to provide multidimensional, orchestrated networks that seamlessly transition across space, sky, and Earth layers.

Pioneering Space-Driven Connectivity

ESA is also capitalizing on the opportunity by initiating the next 5G/6G Hub expansion phase at the European Centre for Space Applications and Telecommunications (ECSAT) in Harwell, UK. This project, led by IT firm, CGI, with support from the UK Space Agency, aims to strengthen satellite-enabled communications and foster collaboration to accelerate Europe's digital transformation. The project consortium includes satellite operators, Eutelsat and OneWeb, and mobile network operator, Vodafone.

The expansion includes new features such as satellite services, edge computing, multi-network orchestration, and environmental impact analysis. ESA expects to announce new collaboration opportunities in the coming months, enhancing the hub's role as a central point for global partnerships.

Moreover, Telefónica and Sateliot have successfully extended a 5G network to space, marking a significant milestone in global connectivity. This breakthrough demonstration, witnessed by the European Space Agency, saw the seamless integration of Sateliot's satellite network with Telefónica's terrestrial network using a standard GSMA roaming process. A vital feature of the test was Sateliot's patented "Store & Forward" technology, which allows devices to store data when satellites are out of position and then forward it once they re-enter a coverage area.

Integrating satellites with terrestrial NB-IoT networks facilitates global connectivity for IoT applications in unrelated terrestrial fields. For example, the integration improves maintenance efficiency for shipping companies and enhances crop monitoring for farmers. In 2024, Telefónica will provide its customers with worldwide NB-IoT connectivity through satellite and cellular networks. This integration sets the stage for a new era in IoT and communication, enabling global, cost-effective connectivity.

At the Harwell Science and Innovation Campus in Oxfordshire, O2 has launched the Darwin SatCom Lab, the UK's first commercial laboratory for 5G and satellite communications. This innovative facility, part of Project Darwin and supported by O2 and the European Space Agency, allows businesses to test next-generation connectivity solutions for connected and autonomous vehicles (CAVs). Combining 5G equipment from Nokia and satellite communications from Hispasat, the Darwin SatCom Lab facilitates the seamless monitoring of the CAV's position, movement, and speed, with data displayed on screens at O2's facilities in Glasgow and Slough.

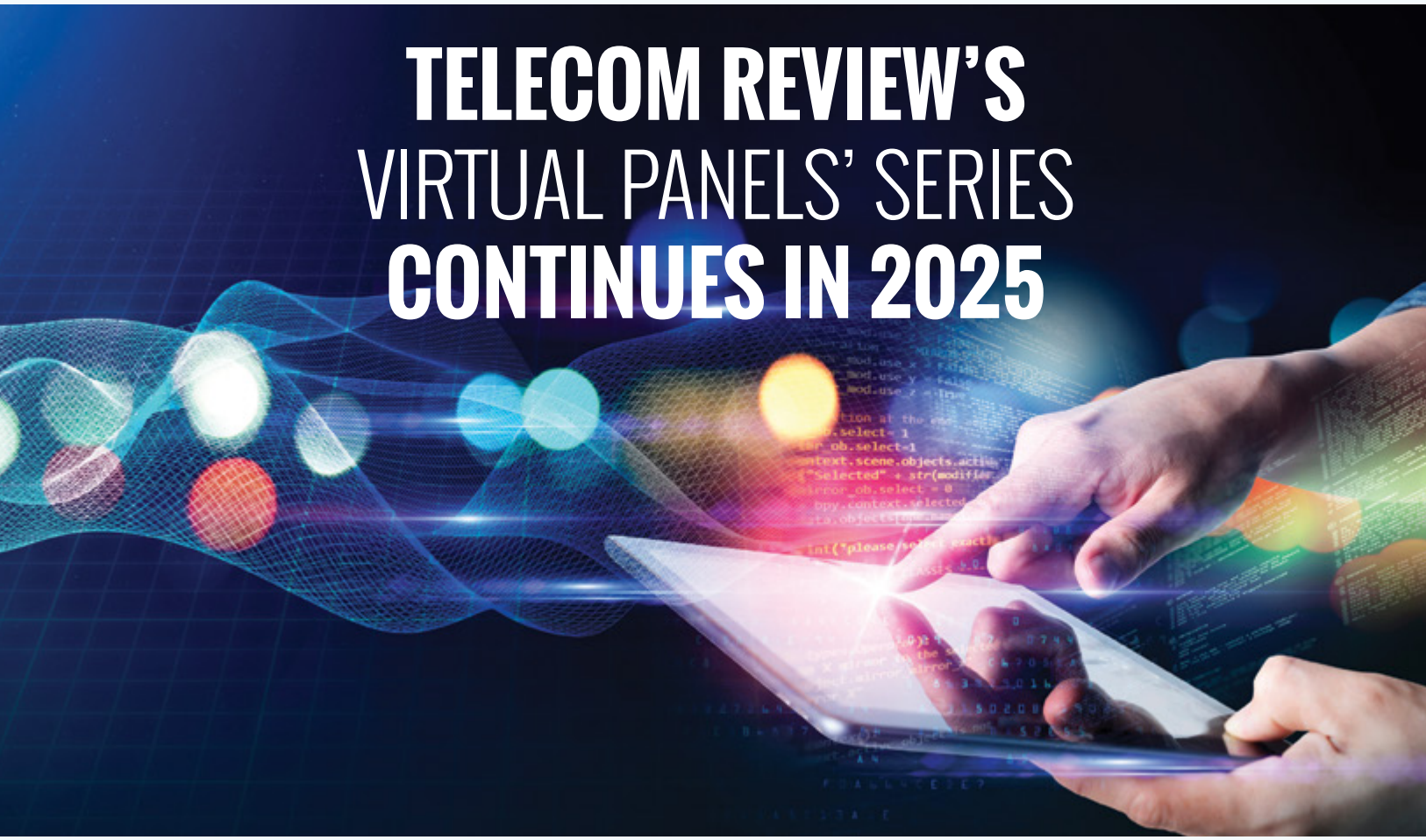
Beyond immediate spatial use cases, the Darwin SatCom Lab will also beta monitor vehicle CO2 emissions using satellite imagery to assess the environmental impact of different routes. This data will identify how O2's retail partners can optimize last-mile deliveries, enhancing sustainability by reducing emissions.

Space is Closer Than It Seems

The industry is on the brink of a revolutionary shift whereby space and telecommunications are set to converge, creating the next era of global connectivity. Through pioneering initiatives like ESA's hybrid networks, Telefónica's integration of satellite IoT, and O2's cutting-edge 5G and satellite communications labs, the fusion of satellite and terrestrial systems is redefining how we communicate and enhancing network resilience, ensuring continuous connectivity in the face of challenges such as rural coverage, network disruptions, and disaster recovery.

These advancements are not only improving connectivity; they are driving innovation across industries, fostering sustainability, and enabling more brilliant, more efficient systems. By integrating space technology into terrestrial infrastructures, the industry is laying the groundwork for a more inclusive, reliable, and secure digital future. TR

TELECOM Review
virtual panels



TELECOM REVIEW'S VIRTUAL PANELS' SERIES CONTINUES IN 2025

Building on previous years' successes, we continue our mission of connecting THE INDUSTRY'S LEADERS

For more information on sponsorships and participation, contact:

Issam Eid | issam@telecomreviewgroup.com
Mohammed Ershad | ershad@telecomreviewgroup.com

Wired for Green: How Renewable Energy is Energizing Europe's Telecom B2B Sector

As Europe strides boldly into a new era of sustainability, the telecom B2B sector is not just keeping pace; it's setting the pace in the renewable energy revolution. This transformation is more than just a vision or surface-level color; it's becoming a reality as telecom giants across the continent harness the power of renewable energy to reshape their operations and redefine industry standards.

Green power" is enabling telecom giants to converge technology and sustainability to create a greener world with the help of wind, sun and water.

Europe's Telecom Giants Lead the Green Charge

Major European telecom operators are making significant investments in renewable energy in a daring move towards sustainability. This shift is not merely a response to environmental pressures but a strategic initiative capable of enhancing efficiency and leadership across the sector.

In alignment with this movement, Deutsche Telekom is planning to transition its operations to 100% renewable energy by 2025. This vision is grounded in a comprehensive strategy involving substantial investments in wind and solar power, powered by several high-impact projects, including developing large-scale solar farms and wind turbines across Europe. The company aims to reduce its reliance on fossil fuels and significantly lower its carbon footprint by integrating these renewable sources into its energy mix. This includes upgrading infrastructure and implementing advanced cooling solutions in its data centers to minimize energy consumption.

Similarly, Vodafone has set a target to achieve net-zero carbon emissions by 2040, leveraging long-term renewable energy contracts and integrating cutting-edge green technologies to meet its goals. A vital element of the company's approach is its power purchase agreements (PPAs) with renewable energy providers. Recently, it expanded its renewable energy efforts with Iberdrola, a global leader in the renewable energy sector headquartered in Spain. Iberdrola will supply clean solar energy to Vodafone's operations in Spain, Portugal, and Germany, delivering 410 gigawatt-hours (GWh) of renewable energy annually—enough to power around 117,000 homes. In addition, Iberdrola has installed over 140 electric vehicle charging points at Vodafone's Spanish facilities, and has committed to the ongoing management and optimization of these services.

Ironically, Orange should consider changing its name to "Green", given the actions the entity has taken to join the eco-friendly revolution. The company has entered into multiple power purchase agreements (PPAs) with solar and wind energy providers, ensuring a consistent and sustainable energy

supply, similar to Vodafone. These agreements reduce greenhouse gas emissions and stabilize energy costs, providing long-term economic benefits.

In addition to procuring renewable energy, Orange is heavily investing in innovative technologies to optimize its energy usage. The company is implementing advanced cooling solutions in its data centers, leveraging liquid and free cooling techniques to reduce energy consumption. It's also focusing on innovative grid technologies and energy-efficient infrastructure.

Green Pioneers Need Green Grounding

Data centers, the backbone of telecom operations, are transforming significantly as companies adopt green technologies. This sustainability focus is making a substantial dent in their environmental impact. European Union regulations, such as the European Green Deal and the Climate Law, are pivotal in this transition, compelling data centers to embrace more eco-friendly practices and significantly reduce their environmental impact.

As the EU barrels towards its ambitious goal of achieving climate neutrality for data centers by 2030, there has been a substantial investment in green technologies, revolutionizing data centers' operations and bolstering their efficiency and sustainability.

Furthermore, artificial intelligence is becoming a transformative force in enhancing energy efficiency within the telecom sector. AI technologies are proving to be invaluable by optimizing network performance and reducing energy consumption.

Orange Business has unveiled two cutting-edge GenAI solutions designed to propel businesses of all sizes along their digital transformation journey. These advanced solutions, powered by high-bandwidth servers and GPUs, are hosted in Orange's state-of-the-art data centers in France on the fortified Cloud Avenue platform and are managed by Orange Business. This configuration ensures absolute control over data and costs, making it ideal for large-scale deployments.

In collaboration with Hewlett Packard Enterprise (HPE), a pioneer in hybrid cloud solutions and a critical strategic partner, Orange Business has leveraged HPE GreenLake to provide a robust and reliable hardware infrastructure, setting a new standard for digital innovation and efficiency.

As telecom companies ramp up their green initiatives, securing green certifications has become a key priority, underscoring the industry's commitment to sustainability. Certifications like ISO 50001 for energy management are helping companies validate their sustainability efforts and demonstrate their commitment to green practices.

Orange is also actively pursuing green certifications to solidify its role as an environmental stewardship leader, ensuring its sustainability initiatives meet rigorous global standards. Alongside Vodafone and Deutsche Telekom, which have achieved ISO 50001 certification, Orange is setting benchmarks for the industry and exemplifying a steadfast commitment to green practices.

Voices of the Green Backed by Implementation

Bobbie Mellor, Head of Sustainability at Vodafone, emphasizes, "Sustainability is such a cooperative sector to work in. 10 years ago it was a choice; now it's part of core business strategy—that's why there is such an interlock between sustainability and other teams in the organization."

Melanie Kubin-Hardewig, Vice President, Group Corporate Responsibility at Deutsche Telekom, also highlighted the importance of committing to a green policy, "We do have a common strategy, and I think this is where it starts. We took last year, for example, to revisit that situation, our strategy, and make sure that we have a very well-balanced Environmental, Social and Governance (ESG) strategy."

The European Commission has established ambitious climate targets to make Europe the first climate-neutral continent by 2050. The European telecom sector is considered to be the face of the green movement, as it now sources at least 80% of its energy from renewables. European telecom companies are also setting ambitious targets to reduce their carbon emissions. Additionally, numerous examples of new data centers have been designed to be carbon neutral, featuring integrated solutions such as dedicated in-built renewable energy plants.

Telecom Italia held a press conference in Milan to announce the expansion of its green network. The company plans to increase its renewable energy use to 80% by 2026, with substantial investments in solar and wind energy projects. This ambitious goal demonstrates Telecom Italia's commitment to a sustainable future and its proactive approach to reducing environmental impact.

Moreover, Stockholm witnessed Ericsson launching its annual sustainability report, detailing the company's progress towards its green goals. The report highlighted Ericsson's success in reducing greenhouse gas emissions and increasing its use of renewable energy.

As leading operators set ambitious goals, invest in green technologies, and drive innovation, they set a powerful example of how the telecom sector can lead the charge in the green revolution. The collective efforts of these companies demonstrate the industry's dedication to creating a sustainable future and the significant strides made towards achieving these goals.

The shift towards renewable energy within Europe's telecom B2B sector is more than a trend; it represents a fundamental transformation towards sustainability and efficiency. TR

5G in European Airports: Enhancing Connectivity and Passenger Experience

The aviation industry is undergoing a significant technological transformation, with 5G connectivity reshaping both the passenger experience and operational efficiency at airports across Europe.

As part of a broader push to enhance digital infrastructure, several European airports are rolling out 5G networks, ushering in a new era of seamless communication, innovative services, and intelligent airport management.

This digital revolution extends beyond airports to meet growing passenger demand for better in-flight connectivity. According to Inmarsat's In-flight Connectivity Survey, 81% of passengers consider connectivity important, and 83% are willing to rebook with an airline that offers high-quality internet. Together, these advancements highlight the critical role of connectivity in modernizing the aviation sector and enhancing customer satisfaction.

5G: The Future of Airport Connectivity

The deployment of 5G in European airports aims to revolutionize passengers' interactions with airport services. It will provide faster, more reliable internet access, lower latency, and higher capacity to handle the increasing volume of connected devices. With the ability to handle massive amounts of data at high speeds, 5G enables a suite of new services previously unthinkable with older networks.

One of the most immediate and noticeable advantages of 5G for airport passengers is the incredible increase in internet speeds. Current Wi-Fi networks in many airports can be sluggish, especially during peak travel when large crowds overload the system. Through 5G, passengers can experience ultra-fast download and upload speeds, enabling them to perform data-heavy tasks like downloading high-definition (HD) movies, streaming 4K videos, and participating in virtual meetings without lag or interruptions.

Business travelers will particularly benefit, as they will no longer need to rely on unreliable or slow internet connections to conduct critical work. Through 5G, file transfers, cloud-based applications, and video conferencing can occur in almost real-time, improving productivity. This fast, reliable internet also benefits leisure travelers, allowing them to easily access entertainment and stay connected with friends and family while on-the-go.

Airports are already exploring integrating AR into the travel experience, helping passengers navigate complex terminal layouts more quickly. For example, passengers can use their smartphones to see real-time overlays of directions to their gates, available services (such as restrooms, lounges, and dining options), and even updated flight information. Furthermore, 5G allows for personalized retail experiences. Retailers can send tailored offers directly to passengers based on their real-time location within the airport or the shopping preferences they've previously expressed.

The process of checking in and boarding flights will become faster and more secure with the integration of 5G-powered technologies. Automated check-in kiosks, which have already been in use for years, will become even more efficient and intuitive when paired with 5G's speed and responsiveness. Biometric technologies such as facial recognition or fingerprint scanning will replace traditional boarding passes, allowing passengers to move through check-in, security, and boarding in a matter of minutes.

This not only speeds up the process but also improves security. Since biometric data is unique to each individual, it provides an extra layer of protection against identity fraud or theft. Additionally, smart boarding gates will ensure that only the right passengers are allowed to board at the correct time, reducing human error and increasing efficiency.

Beyond passenger services, 5G has the potential to completely transform airport operations by creating a highly connected and efficient environment.. For example, smart baggage systems will be able to utilize 5G to track luggage at every stage of its journey—from check-in to delivery at baggage claim. This allows for immediate alerts in case of misdirected or delayed luggage. Similarly, vehicle tracking using 5G-enabled sensors will allow airports to monitor the movement of aircraft tugs, baggage carts, and shuttle buses, ensuring they are operating efficiently and avoiding bottlenecks or delays.

Moreover, crowd management will benefit greatly from 5G, as it will allow airports to track passenger flow and predict congestion points. This can help adjust staffing levels, open additional security lanes, or reroute travelers to underutilized areas, all in real-time.

Key Airports Leading the Way

Several leading European airports are actively deploying or piloting 5G infrastructure to remain competitive and elevate the travel experience. These airports are transforming into testbeds for cutting-edge 5G applications. By integrating high-speed, low-latency networks, they aim to streamline passenger services, optimize airport operations, and enable innovative technologies like biometric check-ins, real-time baggage tracking, and augmented reality navigation.

1. **Schiphol Airport**

Schiphol Airport, one of Europe's busiest airports, has launched a private 5G network in collaboration with Ericsson to support its digital transformation under the "Airport 4.0" initiative. This dedicated network, using a spectrum granted by the Dutch regulator, allows the airport to control its communications infrastructure, improving security and network performance.

The private 5G network will support various applications, including IoT-based monitoring, real-time safety systems, and predictive

maintenance. By using Ericsson's dual-mode core for 4G and 5G connectivity, Schiphol aims to optimize operations, reduce downtime, and enhance overall passenger experience while keeping sensitive data on-site.

Manish Tiwari, Head of Private Cellular Networks, Enterprise Wireless Solutions at Ericsson, noted, "We are proud to partner with Schiphol on this pioneering project that will address the overall aging infrastructure of airports throughout the world." He also added that, "By leveraging Ericsson Private 5G, Schiphol is setting the stage for innovative solutions that will help them explore the full potential of 5G and the benefits it brings to airport operations."

2. **Frankfurt Airport**

Germany's largest airport is actively working on integrating 5G infrastructure across its terminals. Frankfurt Airport has been experimenting with autonomous vehicles and intelligent luggage systems that rely on 5G connectivity to deliver real-time data. The 5G rollout is part of a broader initiative to turn Frankfurt into a "smart airport"—where technology enhances every aspect of the passenger journey.

Frankfurt Airport, managed by Fraport AG, is deploying one of Europe's largest private 5G networks to drive digitalization and streamline operations. The private 5G network, covering the entire airport, will enable automation, real-time data processing, and equipment localization across its vast area.

Critical applications include enhanced perimeter security, where 5G-connected cameras will monitor the airport's 30-kilometer fence line. Autonomous vehicles and drones will leverage the network for tasks like patrolling and transporting equipment across the airfield. Fraport's SVP of IT Infrastructure, Fritz Oswald, highlighted that 5G's reliability and coverage make it superior to traditional WLAN, especially in large, open areas where network blockages frequently occur during under-wing operations. According to Oswald, it has been difficult to adequately illuminate the airport's large open spaces with WLAN technology up until now. "In everyday life, there are always problems with WLAN coverage during under-wing operations, for example, when aircraft wings block reception," he said.

Further innovations include automated luggage delivery by small 5G-powered robots and video analytics to monitor runway conditions—a data-intensive task now optimized through edge computing and cloud transfer. Through these advancements, Fraport is positioning Frankfurt Airport as a leader in airport digital transformation.

3. **San Sebastián Airport**

Spanish airport operator, Aena, has partnered with Cellnex Telecom to deploy Spain's first private 5G network at San Sebastián Airport. This groundbreaking initiative marks a major milestone in the modernization of airport technology and is among the first-of-its-kind in Europe.

Brought into service in 2024, the pilot project introduced a cutting-edge 5G network tailored to the needs of San Sebastián Airport, emphasizing ultra-fast data transfer, low latency, and the capacity to connect numerous devices simultaneously. A key innovation is its application in drone operations, enabling advanced capabilities in security surveillance and environmental monitoring. Drones equipped with sensors will collect crucial data—such as air quality, noise levels, and humidity—which will then be processed via the Cellnex SmartBrain Platform. Collaborations with Nokia and Inetum ensure the deployment of robust 5G infrastructure and the seamless operation of drones.

This 5G deployment aims to transform airport operations by supporting Internet of Things (IoT) devices, big data analytics, artificial intelligence (AI), and augmented

> Beyond passenger services, 5G has the potential to completely transform airport operations by creating a highly connected and efficient environment

reality (AR) applications. Beyond connectivity, the technology facilitates smarter management of resources, optimizes operational efficiency, and bolsters airport security systems. Importantly, it promotes sustainability, helping airports manage their environmental footprint in line with conservation efforts.

Pablo Lopez Loeches, Head of Ideation & Entrepreneurship at Aena, underlined the importance of implementing a private 5G network within airports as it, "allows us [Aena] to test specific airport use cases that require high capacity, low latency and high device density, as well as a new connectivity layer that provides the airport community with a highly reliable and readily available data transmission service." He went on to state that "performing these tests will allow us to identify the degree of maturity of 5G technology and to see to what extent it can be adapted to Aena's needs to improve our internal connectivity services."

Moreover, Spain's Aena has been testing digital twin technology in its airports, powered by 5G networks. These simulations provide real-time visualizations of terminal operations, enabling predictive maintenance and better crowd management, contributing to smoother passenger flow.

Future Prospects and Challenges

While the progress is promising, the deployment of 5G at airports does not come without its challenges. One of the primary hurdles is the cost of infrastructure development. Installing 5G networks in airports involves significant investment in both hardware and software, as well as compliance with strict aviation regulations.

Moreover, ensuring seamless interoperability across different airports and telecom networks is vital for a truly unified experience. As 5G networks are rolled out across Europe, the ability to provide continuous, high-quality service as passengers move between different terminals and airports will be a key consideration.

The roll-out of 5G networks across European airports is still in its nascent stage, but the potential for transformation is enormous. By leveraging the high-speed, low-latency capabilities of 5G, airports are setting the stage for smarter, more efficient, and more personalized travel experiences.

As technology continues to evolve, we can expect more European airports to adopt 5G, driving a shift towards fully-connected, digital-first airports. The benefits of this connectivity will extend beyond just the traveler's journey, influencing everything from operational efficiency to security, and transforming airports into hubs of innovation.

In conclusion, 5G deployment in European airports is not just about providing faster internet; it's about unlocking new opportunities for innovation that will define the future of air travel. The next few years will likely see a surge in smart airport solutions powered by 5G, which will shape the future of aviation in Europe for decades to come. TR

European Companies Face Cloud Transformation Gap

For European companies, the cloud journey presents both significant opportunities and challenges, highlighting the need for a more strategic approach to fully unlock its potential.

European businesses are undeniably embracing cloud technology, with over 90% of companies citing their cloud programs as a priority, as stated in a McKinsey report. More than one-third of these businesses report that they intend to move over half of their workloads to the cloud. These figures reflect an ongoing commitment to digital transformation and operational efficiency. Many have already made significant strides, with almost two-thirds of European companies reporting that they have established a cloud foundation.

The benefits captured so far are notable. A significant 55% of companies report being satisfied with their cloud investments, noting improvements in IT security, operational efficiency,

and productivity. Furthermore, 75% of businesses have realized cost savings in IT, while over half have generated new revenue streams from their cloud initiatives. Such outcomes demonstrate that cloud adoption is no longer just about cost reduction; it's about driving new business opportunities and enhancing competitive positioning.

The Cloud Transformation Gap

Despite these successes, the broader cloud adoption landscape in Europe reveals a more complex picture. While many companies are capturing value, this value remains isolated and subscale, primarily within specific areas of the business. A staggering 82% of European companies admit that the full potential of cloud is yet to be realized. This shortfall is partly due to a disproportionate focus on IT-centric cloud strategies that center on infrastructure migration rather than driving value in business operations.

This IT-first approach, although common across Europe, is limiting the transformative impact of the cloud. The real potential of the cloud lies in its ability to streamline and enhance business processes. Research indicates that approximately two-thirds of cloud value comes from operational improvements outside of IT—such as process automation, improved customer engagement, and enhanced decision-making. However, only one-third of companies measure outcomes beyond IT, such as cost savings in other departments or new revenue generation. This gap highlights a significant opportunity for businesses to recalibrate their cloud strategies to ensure they are measuring the right metrics for long-term success.

Embracing the Shift: Business-Centric Cloud Adoption

To unlock the full potential of cloud, European businesses must shift their focus from IT-centric solutions to cloud strategies that drive broader business value. A more business-oriented approach requires embracing cloud's ability to optimize operations, innovate products, and improve customer experiences. The integration of generative AI (GenAI) into cloud adoption further amplifies this potential, with companies leveraging AI technologies to create personalized solutions, automate complex workflows, and gain actionable insights from data.

One critical step in this transition is recognizing the strategic role of cloud service provider (CSP) and system integrator (SI) partnerships. Beyond traditional vendor relationships, European companies must foster collaborations that align cloud initiatives with business transformation goals. By working closely with CSPs and SIs, businesses can build the necessary capabilities to support their cloud adoption efforts, from migration funding to talent development and operational model design.

Optimizing Cloud Spend and Maximizing ROI

As companies scale their cloud adoption, managing costs becomes increasingly critical. The lack of effective cloud spend management, or FinOps, is a common

pitfall that many companies encounter. While cloud provides immense value, its costs can spiral without careful oversight. European businesses can learn from their U.S. counterparts, many of which have invested in robust FinOps practices from the outset of their cloud migrations. This early investment in spend management ensures that cloud costs are optimized and aligned with business value.

Additionally, scaling cloud capabilities should focus on achieving measurable ROI rather than simply increasing the number of workloads in the cloud. For example, a Southern European bank was able to achieve significant operational benefits with less than 20% of its workloads in the cloud, thanks to the adoption of cloud-native engineering practices and strategic partnerships with CSPs and SIs. This approach highlights the importance of balancing cloud adoption with ROI considerations to avoid diminishing returns as cloud usage grows.

The cloud journey in Europe is still unfolding, but by adopting a more business-centric approach, companies can unlock the true potential of cloud to drive innovation, optimize operations, and fuel growth. With up to USD 3 trillion in potential value for those who move beyond simple cloud adoption, the opportunity is ripe for those ready to take bold steps and embrace the future of business transformation. TR

Italy Advances Telecom Deal with Space

Italy is edging closer to finalizing a EUR 1.5 billion agreement with SpaceX to secure advanced telecommunications services for government and military use.

The five-year contract, under review since mid-2023, includes encrypted phone and internet communications and has gained traction following Prime Minister Giorgia Meloni's visit to President-elect Donald Trump. Reports indicate the project has the support of Italy's Intelligence Services and Defence Ministry, though the deal remains pending.

Concerns from Local Operators
The proposed partnership has drawn criticism from Assetel, a lobbying group for domestic telecom providers. The group argues that SpaceX's direct-to-consumer Starlink model bypasses existing regulations and poses a competitive threat to local operators struggling with mounting debt and shrinking revenues.

Telecom Italia S.p.A., for example, reported EUR 8 billion in net debt by late 2024 despite selling its network to KKR & Co. for EUR 22 billion. Vodafone Italia, recently acquired by Swisscom AG for EUR 8 billion, reported a EUR 739 million loss in the six months ending September 2024. Assetel has also raised concerns about data sovereignty, urging the government to ensure sensitive data remains stored within Italy.

Starlink: A Solution to Broadband Delays
The Italian government views Starlink as a critical tool to address delays in its broadband rollout, a key component of the EU-funded Recovery and Resilience Facility (RRF). With only a third of the 3.4 million buildings targeted under the EUR 3.4 billion plan connected, local operators like Open Fiber and FiberCorp have fallen behind schedule.

Cabinet Under-Secretary, Alessio Butti, highlighted that SpaceX has the potential to accelerate the process, helping Italy meet EU connectivity goals and maximize its share of EUR 194.4 billion in recovery loans and grants. As the country faces economic hurdles, including a debt-to-GDP ratio of 137% (as of mid-2024), innovative solutions like Starlink are crucial for progress.

SpaceX continues to expand globally, recently completing the first orbital shell for its satellite-to-cellphone internet service with the launch of 20 new satellites in December, 2024. Starlink boasts 6,700 active satellites and over four million customers in over 100 countries, including 55,000 in Italy.

If finalized, the SpaceX deal would mark a transformative step for Italy, enhancing secure communications and addressing connectivity gaps that have hindered its economic and technological growth.

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).

Eight-Strong Consortium to Advance EU Cloud and Edge Technologies

Italy's top industrial and research institutions are spearheading the groundbreaking advancemement of European cloud and edge technologies.

Politecnico di Torino, Fondazione Bruno Kessler (FBK), ENEA, TIM, Tiscali, Engineering, Fincantieri, and Reply have united under the 8ra project. Backed by the European Union's Important Projects of Common European Interest (IPCEI) program, the initiative aims to create a shared testing environment, fostering collaboration to improve cloud interoperability and drive technological progress across Europe.

Driving Cloud Innovation in Europe
The 8ra initiative aims to enhance cloud interoperability, stimulate investment in edge and cloud technologies, and encourage the entry of new market players to expand the digital ecosystem. In December, 2023, the European Commission approved the first IPCEI, which focused on building a European value chain for Cloud Infrastructure and Services (CIS). This milestone project has been allocated over EUR 1.2 billion in state aid, with approximately EUR 409 million earmarked for Italy.

This collaboration represents a significant step forward for the Italian industry and research institutions. The initiative will pave the way for sector-specific advancements and broader industrial applications by leveraging edge platforms developed by the project partners.

Creating a Shared Testing Environment
At the heart of the initiative is a shared testing environment that allows partners to pool resources for experiments, feasibility studies, and project validations. This integrated setting fosters efficiency, accelerates technological progress, and facilitates the transition to product industrialization.

The project lays the groundwork for commercialization, offering a scalable model for validating complex technological solutions collaboratively. It also sets the stage for developing and adopting innovative technologies, ultimately driving ecosystem growth and future innovation.

As a cornerstone of European digital policy, the 8ra project highlights the potential of collaborative efforts in advancing cutting-edge technologies and fostering a robust, interconnected European digital landscape.

EU Commission Pledges EUR 323 Million for Digital Connectivity Projects

The European Commission has unveiled the fourth set of calls for proposals under the digital strand of the Connecting Europe Facility (CEF Digital) program, pledging a total budget of EUR 323 million. This funding aims to enhance Europe's digital infrastructure and deploy fast, secure, and sustainable connectivity solutions to strengthen the continent's digital framework.

The new calls are designed to accelerate the development of critical digital infrastructures, including backbone connectivity, 5G networks, and quantum communication systems, all of which are essential for Europe's future digital landscape.

Much of the funding, EUR 128 million, is dedicated to deploying backbone connections, mainly through submarine and terrestrial cables. These connections will enhance the performance and resilience of networks across the EU, including islands, remote regions, and sparsely populated areas. This initiative aligns with the EU's Global Gateway strategy and its recommendations for the security and resilience of submarine cable infrastructure.

Boosting 5G and Quantum Connectivity in Europe
In addition, EUR 105 million will support large-scale 5G pilots in intelligent communities and transport corridors aiming to roll out 5G standalone (5G SA) infrastructure. This will unlock innovative services, particularly in Connected and Automated Mobility (CAM), supporting the EU's vision for a connected and collaborative computing network as outlined in the white paper on Europe's digital infrastructure needs.

Furthermore, EUR 90 million will fund the interconnection of national quantum communication networks across borders as part of the European Quantum Communication Infrastructure (EuroQCI). This will facilitate the integration of ground and space segments, enhancing Europe's cybersecurity and quantum communication capabilities.

Eligible entities can submit proposals for these calls until 13 February 2025 at 17:00 CET. This initiative represents a significant investment in Europe's digital future, ensuring the continent remains at the forefront of technological innovation and connectivity.

Beyond “Das Auto”: AI's Impact on the German Car Industry

The German economy is increasingly embracing artificial intelligence (AI), with 27% of companies now utilizing AI, a significant rise from 13.3% the previous year. While AI remains a lower priority for around one in five businesses, 17.5% plan to adopt it in the coming months.

Klaus Wohlrabe, Head of Surveys at IFO Institute for Economic Research, noted, “The trend is likely to accelerate, with companies expecting AI to significantly boost productivity by more than 10%, a potential game-changer for the economy.”

This shift is particularly evident in Germany's automotive sector, which is known for its engineering expertise and innovation. The industry, led by iconic names like Mercedes-Benz, Audi, BMW, and Volkswagen, is at the forefront of the technological revolution, with AI transforming the landscape of car manufacturing and redefining the future of mobility.

A New Era of Automotive Innovation

Germany's leading car manufacturers—Mercedes-Benz, Audi, Volkswagen, and BMW—are harnessing the power of AI to revolutionize every aspect of the automotive lifecycle. From the initial design phase to manufacturing and post-sale services, AI is transforming traditional processes into dynamic, data-driven strategies. These companies are at the cutting edge of automotive innovation, using advanced AI technology to not only set new benchmarks in the industry but also to enhance the driving experience significantly.

AI algorithms have become indispensable partners in automotive design studios. By analyzing extensive data sets, these systems anticipate consumer preferences, enabling designers to create vehicles that are visually striking and aligned with market trends. AI-powered simulations further allow engineers to test and refine designs in virtual

environments, streamlining development and cutting costs.

Regarding manufacturing, German automakers oversee AI-driven advancements. They integrate machine learning (ML) and robotics to boost efficiency and ensure quality control. AI-driven predictive maintenance keeps machinery running smoothly, reducing downtime and minimizing disruptions. Additionally, AI-powered automated inspections can detect even the most minor defects with greater precision than the human eye, enhancing overall production standards and elevating the quality of the final product.

Mercedes-Benz: Driving into the Future

Mercedes-Benz has made significant strides in automotive AI, unveiling a new virtual assistant at the Consumer Electronics Show (CES) in 2024. This advanced AI assistant is not just a tool but a personalized companion that engages in context-based conversations, provides intelligent suggestions, and communicates with varied emotional tones. It represents a leap forward in making the driving experience more interactive and tailored to individual preferences.

Markus Schäfer, Mercedes-Benz's Chief Technology Officer, highlighted the importance of this development, emphasizing that the new assistant acts as an interactive dialogue partner. This feature will be incorporated into several upcoming models, including the new concept CLA class, an electric vehicle showcased at the trade fair.

The company has also introduced innovative voice assistant technology, including response plausibility checks. This feature ensures that the information provided is accurate, reliable, and verified through cloud data and user feedback. This commitment to accuracy and reliability underlines Mercedes-Benz's dedication to enhancing the trustworthiness and effectiveness of in-car technology, making the driving experience more secure and dependable.

Mercedes-Benz's new virtual assistant also boasts the ability to perform plausibility checks for its responses, ensuring the accuracy of the information provided. This feature is crucial for validating real-time data, such as the operational status of recommended destinations. Schäfer emphasized Mercedes-Benz's commitment to delivering reliable and trustworthy information, underscoring the significance of these technological advancements in enhancing the driving experience.

Audi's AI: Shaping the Future of Production

Audi remains a trailblazer in automotive innovation and is renowned for its cutting-edge technology and exceptional performance. The brand is celebrated for its meticulous engineering and luxurious design, seamlessly incorporating advanced tech solutions into its vehicles. Although recent announcements haven't spotlighted specific AI advancements, Audi continues to lead the industry, persistently pushing the limits of performance and technological progress.

The company is pioneering the use of artificial intelligence (AI) in automotive production, becoming one of the first manufacturers to integrate this technology into the factory floor. The company's experts, Rüdiger Eck, Head of Data & Analytics Factory and Stefan Keckl, Head of Data Analytics, steadfastly highlight how AI is transforming Audi's production processes and why human involvement remains crucial, as the company implemented AI in two critical areas of its production:

- **Body Construction:** At the Neckarsulm site, AI monitors spot weld quality using data from welding machines, reducing the need for manual inspections.
- **Press Shop:** In Ingolstadt, AI checks images of pressed parts for cracks. It assists operators by flagging potential issues. Future developments include utilizing AI to make autonomous decisions.

Despite AI's growing role, Eck and Keckl emphasize that humans are indispensable. Tasks requiring complex cognitive and sensory skills, like assembly work, are less likely to be fully automated. AI excels at handling repetitive tasks and analyzing large datasets, complementing rather than replacing human capabilities.

Looking ahead, Audi plans to implement AI to:

1. **Improve Product Quality:** By sending alerts detailing potential errors.
2. **Reduce Errors:** By automating repetitive tasks.
3. **Optimize Processes:** By uncovering insights and correlations.
4. By boosting machine and process efficiency.

Currently, Audi has around 60 data experts working on AI integration and focusing on machine learning and data science.

Eck and Keckl assert that AI's potential lies in assisting humans, similar to how driver assistance systems enhance safety. Audi's goal is to become a data-driven company, leveraging AI to support and improve human decision-making in production.

BMW and it's Futuristic Approach

BMW is synonymous with engineering excellence and is equally committed to integrating advanced technology into its vehicles. The brand's approach to AI includes sophisticated driver assistance systems and infotainment enhancements, ensuring their cars remain at the cutting edge of technology. Although not the focal point of recent CES announcements, BMW's ongoing advancements reflect a dedication to combining high performance with intelligent, user-friendly technology.

Recently, the German company made headlines with a bold innovation at its Spartanburg plant in South Carolina. Humanoid robots are set to transform automotive manufacturing. Partnering with Figure AI, a startup founded in 2022, BMW is introducing these advanced robots to enhance production efficiency and safety.

The humanoid robots developed by Figure AI are 5'6" (1.67m) tall, weigh 60kg, and can handle payloads of nearly 20 kg. Designed to complement human workers, these robots are set to substantially impact the production of models such as the X3, X5, X6, X7, and XM. This marks Figure AI's first commercial deal,

showcasing its rapid progress and technological prowess.

Figure AI plans to implement a phased rollout of the robots, starting with a limited number to gauge performance. CEO, Brett Adcock, is optimistic, highlighting the robots' safety features and the importance of the partnership with BMW as a significant endorsement.

The integration of humanoid robots at BMW's Spartanburg plant holds the potential to significantly enhance manufacturing efficiency. While it also poses risks, such as potential complications leading to recalls, the industry is eagerly awaiting the outcome and is hopeful for a future of enhanced efficiency and safety in automotive manufacturing.

BMW's move echoes Honda's Asimo journey, which, despite its advanced design, did not see widespread industrial use. BMW, already known for its robotic innovations, including the Smart Transport Robot (STR), continues to lead in integrating advanced technologies into its manufacturing processes.

The drive toward autonomous vehicles is the most prominent example of AI's impact on the automotive industry. German car manufacturers are leading the way in creating advanced driver-assistance systems and fully autonomous vehicles. Essential technologies like computer vision, sensor fusion, and machine learning are crucial for developing cars that can safely and effectively handle intricate traffic situations.

Key Developments in Volkswagen's AI Strategy

1. AI Lab Establishment and Innovations

At the beginning of the year, Volkswagen launched its own AI lab, describing it as a "globally networked competence center and incubator" for automotive innovations. This lab aims to produce proofs of concept in AI, focusing on optimizing electric vehicle charging, predictive maintenance, and integrating vehicles with smart home technologies. The strategic move aligns VW with other technology-driven companies like Microsoft and Google, which have established AI research units.

In a press release, Oliver Blume, CEO of the Volkswagen Group and Porsche AG, stated, "We want to offer our customers genuine added value with artificial intelligence," adding that the company aims to "link external digital ecosystems with the vehicle, creating an even better product experience."

The AI lab facilitates VW's efforts to make its vehicles smarter by exploring advancements such as AI-powered voice recognition and improved vehicle-to-customer connectivity. This initiative also signals VW's intention to reduce its reliance on external AI technologies, thus, fostering greater independence and innovation.

2. Operational Advancements and Product Innovation

VW's AI implementations play a key role in enhancing product performance and sustainability. For instance, the design of truss structures in electric vehicle batteries, which incorporates pyramidal structures to embed AI-soaked materials like steel, has led to a reduction in battery weights. This innovation not only extends the range of cars but also underscores VW's dedication to advancing automotive engineering through the integration of AI.

Furthermore, integrating advanced AI technologies in VW cars has revolutionized car protection and connectivity. These new methods protect the vehicle and enhance its connectivity with external devices, significantly improving the user experience.

3. Financial and Efficiency Gains

The VW Industrial Cloud, built on Amazon Web Services (AWS), is expected to drive a 30% increase in productivity and a similar decrease in factory costs. This integration aims to save VW EUR 1 billion in supply chain costs, reflecting AI's role in operational efficiency and financial optimization.

During his time as Volkswagen Group CIO, Dr. Martin Hofmann emphasized several vital reasons for choosing AWS (Amazon Web Services) for Volkswagen Group's needs, "We chose AWS not only because of technology but because of the ability to scale, to provide us with standards for our factories; the implementation speed that we are getting from AWS methodologies, the flexibility, and the culture is helping us to accelerate this project."

VW's AI-powered energy management solutions, especially in compressed air control systems, underscore the company's commitment to sustainability. These innovations are designed to cut operational costs and minimize environmental impact, reflecting VW's dedication to aligning with broader eco-friendly objectives.

4. ChatGPT Integration

Volkswagen's recent announcement at CES 2024 in Las Vegas has made headlines, revealing an ambitious AI initiative. The company is integrating ChatGPT technology into its vehicles, marking a significant advancement in automotive AI applications. This integration, powered by Cerence Chat Pro, will be available across several models, including the ID.7, ID.4, ID.5, ID.3, the new Tiguan, Passat, and Golf, starting in the second quarter of 2024.

The new feature enables Volkswagen drivers to access an extensive AI database, enhancing the IDA voice assistant's capabilities. This integration will allow more intuitive voice control over infotainment, navigation, and climate systems while also answering a broad range of queries. The integration promises to make the driving experience more interactive and user-friendly, with seamless activation through simple

voice commands or steering wheel buttons. ChatGPT will handle queries securely without accessing personal vehicle data, ensuring privacy and smooth functionality.

Volkswagen's move to standardize ChatGPT across its vehicle lineup demonstrates its commitment to democratizing advanced technology and improving user experiences. This initiative reflects Volkswagen's strategic approach to innovation and technology and its effort to reduce dependence on external tech giants.

Volkswagen released a press release in June this year stating that ChatGPT is now available in a range of Volkswagen models.

Volkswagen customers with an existing VW Connect or VW Connect Plus account can continue to use the IDA voice assistant as usual without needing extra access or a separate app. Users can activate the digital assistant by saying "Hello IDA" or pressing a steering wheel button. If a query exceeds the capabilities of the Volkswagen system, it is anonymously forwards the query to ChatGPT, with the response delivered in the familiar Volkswagen voice. ChatGPT cannot access vehicle data, and all questions and answers are promptly deleted to ensure top-notch data protection. Users can deactivate the online voice assistant through the settings in the Volkswagen app or the privacy settings in the infotainment system.

5. **Cooperation with Deutsche Telekom**

Deutsche Telekom supports the publicly funded "AutoLog" project at the port of Emden with cutting-edge 5G technology and edge computing to automate and enhance workflows at automotive terminals. In partnership with Volkswagen Group Logistics, BIBA (the Bremen Institute for Production and Logistics), and software expert, Unikie, the project aims to develop new storage and logistics solutions using automated driving.

The Emden plant, a vital part of Volkswagen's logistics network, handles over one million vehicles annually. However, as vehicle shipments increase, terminal operators are grappling with challenges such as limited space and a shortage of skilled workers. The 'AutoLog' project, in response to these pressing issues, is testing automated driving technologies to enhance efficiency, safety, and sustainability in vehicle handling.

Key innovations include deploying a 5G network for real-time vehicle communication and Light Detection and Ranging (LiDAR) sensors to create a digital twin of the logistics area to control automated processes precisely. Deutsche Telekom's edge data center ensures fast, secure data processing on-site, while Unikie's marshaling system facilitates automated vehicle movements.

The 'AutoLog' project, which aims to boost terminal efficiency by 20%, cut shuttle transportation, and reduce CO2 emissions by up to 25%, promises to substantially impact the automotive industry. With a budget of EUR 5.8 million and a three-year timeline, this project, funded by the Federal Ministry of Digital and Transport and overseen by TÜV Rheinland, is expected to pave the way for future research and will be standardized in other terminals.

The Road Ahead

German automotive brands like BMW, Mercedes-Benz, Audi, and Volkswagen have long been celebrated for their exceptional engineering, performance, and luxury. Their vehicles are renowned for high performance on the Autobahn, luxurious detailing, and meticulous component assembly—hallmarks of German automotive excellence.

The focus on advanced software and AI innovations becomes even more crucial as the industry shifts towards electric vehicles with simpler hardware. German automakers are leading this transformation, using AI to enhance vehicle functionality, safety, and user experience. Volkswagen's and Mercedes-Benz's recent advancements in AI technology exemplify this trend, setting new benchmarks for the automotive industry.

While Volkswagen remains a crucial player, AI's impact goes beyond individual companies, transforming the entire industry. This shift is paving the way for more intelligent, efficient, and innovative vehicles, ensuring AI will play a crucial role in the future of automotive development; ultimately, AI is set to power the road ahead. TR

Vodafone Spain and MASORANGE Join Forces to Create FibreCo

BT Group has launched its first partially self-powered mobile site in the Shropshire Hills, marking a significant step towards sustainable telecommunications.

This innovative site is designed to support 4G and 5G services and aims to achieve an impressive goal of generating approximately 70% of its energy from on-site solar panels and a wind turbine. The renewable energy collected will charge the batteries that power the equipment on the mast.

When renewable energy is insufficient and the batteries are depleted, the site will rely on a generator powered by hydrotreated vegetable oil (HVO) as a backup. HVO is considered a green fuel, produced from various waste and residual oils, further enhancing the site's sustainability.

BT Group estimates that this self-powered site will produce around 17,000 kWh of energy annually, equivalent to the energy needed for approximately 100,000 hot showers. Additionally, the initiative is expected to save the operator over GBP 10,000 each year.

BT's Commitment to Sustainable Connectivity

Although the Shropshire Hills site is being tested, BT has already identified hundreds of other potential locations that could benefit from similar renewable energy sources, particularly in coastal or hilly areas. The company aims to achieve Net Zero status by 2031, significantly enhancing the energy efficiency of its networks, which currently account for about 89% of its total energy consumption.

This move follows BT's earlier efforts to improve energy efficiency, including implementing energy-saving, cell-sleep technology across its radio access network (RAN) and shutting down its 3G network.

"Delivering ubiquitous coverage is critically important in an age where connectivity has never been so central to everyday life, but it must be done responsibly and sustainably. It's paramount that we increase the energy efficiency of our networks, so we're excited about the potential of self-powering sites enabling us to meet both our sustainability and connectivity ambitions," emphasized Greg McCall, Chief Networks Officer at BT Group.

Orange to Power 5G SA Network at FC Barcelona's Camp Nou

Orange has announced a groundbreaking partnership to provide 5G Standalone (5G SA) network infrastructure at FC Barcelona's newly renovated Spotify Camp Nou stadium.

The move, part of a strategic agreement between the club and New Era Visionary Group (NEVG), aims to make the venue the most connected football stadium globally. As the system integrator, NEVG will oversee the design and implementation of this cutting-edge 5G infrastructure at Spotify Camp Nou.

Innovative Infrastructure for a Digital Future

This collaboration will ensure that fans, staff, media, and suppliers at the stadium can stay seamlessly connected during match days and events. Utilizing Orange's advanced 5G SA technology, spectators can access digital services, stream live content, and enjoy an enhanced fan experience with ultra-low latency and uninterrupted connectivity.

NEVG will also utilize Orange's 5G network to develop Barça Mobile, a mobile service offering fans and users a wide array of services, including mobile plans, data services, and fiber optics. Additionally, Barça Mobile subscribers will benefit from roaming services, with special discounts and exclusive perks for FC Barcelona members.

Juli Guiu, Vice President of Marketing at FC Barcelona, emphasized the project's importance for the club's digital transformation, noting that, "Espai Barça is central to our digital vision, and having the best connectivity at the stadium is vital to delivering a unique experience for our fans. The launch of 'Barça Mobile' with NEVG, in collaboration with Orange, marks a major milestone in providing comprehensive services to our supporters."

Joaquín Colino, MASORANGE's General Manager of B2B, added, "We are incredibly proud to partner with such an iconic club as FC Barcelona, alongside NEVG, to ensure world-class connectivity at Spotify Camp Nou. This agreement underscores Orange's commitment to high-performance infrastructure in sectors like football, where fans expect nothing less than seamless, high-speed connectivity at major events."

With this cutting-edge 5G infrastructure, FC Barcelona is positioning itself at the forefront of digital transformation in sports, setting a new benchmark in fan experience and connectivity at stadiums worldwide.

Virgin Media O2 Debuts UK's First 5G Standalone Small Cells

Virgin Media O2 has unveiled the UK's first 5G standalone small cells, marking a significant milestone in mobile connectivity.

The new technology, installed in the heart of Birmingham, is already improving mobile services for customers in some of the city's busiest areas, including Broad Street and Fleet Street.

Small Cells Revolutionizing Mobile Connectivity

Unlike traditional mobile towers, these compact small cells have been strategically placed on existing street furniture, boosting mobile capacity in high-traffic locations. This deployment is the first in the UK to utilize 5G standalone (5G SA) technology, offering superior performance with lower latency and higher bandwidth compared to 4G and non-standalone 5G networks.

Virgin Media O2 launched the 5G standalone network earlier this year. It is now available in more than 300 towns and cities across the UK, with no extra cost to O2 customers. This expansion is part of the operator's broader effort to future-proof its network and meet the growing demand for reliable, high-speed connectivity. The new small cells are expected to offer a faster, smoother mobile internet experience, particularly for customers who use mobile data for activities like browsing, streaming, and working remotely.

Partnership and Innovation: MIMO Technology in Action

Virgin Media O2 has partnered with Ontix and Alpha Wireless to deploy the small cells, utilizing MIMO (Multiple Input, Multiple Output) technology for the first time. This innovation has already delivered impressive results, with customers experiencing speeds of up to 300 Mbps in the area.

Jeanie York, Virgin Media O2's Chief Technology Officer, emphasized the importance of small cells in improving network reliability, especially in high-demand areas. "We're working hard to ensure all our customers consistently receive an exceptional network experience, even in the busiest locations," she said.

Boosting Connectivity in Birmingham's Heart

Chris Hudson, Connectivity Director at WM5G, also welcomed the new deployment, highlighting the importance of fast and reliable connectivity for residents and businesses in Birmingham. "These discreet masts will ensure visitors and residents across the West Midlands enjoy a high-quality connectivity experience," Hudson added.

This installation is part of Virgin Media O2's ongoing GBP 2 million-a-day investment in its mobile network infrastructure. As demand for mobile data continues to rise—O2 customers consumed 26% more data in 2023—the operator is committed to expanding and upgrading its network to provide seamless coverage and meet customer expectations.

Tele2 and Telenor Boost Sweden's Digital Future

The 5G network jointly developed by Tele2 and Telenor under Net4Mobility now covers more than 90% of Sweden's population. Notably, approximately 70% of this coverage includes access to 5G+ services, offering speeds between 200 and 800 Mbps, made possible by the advanced 3.6 GHz spectrum technology.

This achievement marks a significant milestone in Sweden's connectivity journey, rapidly advancing its leadership in implementing world-class digital infrastructure. The 3.6 GHz band, utilized explicitly for the 5G+ rollout, is designed to meet the demands of data-intensive applications such as live streaming, video calls, and other bandwidth-heavy services.

A Pioneering Effort

Tele2 made history in 2020 as Sweden's first operator to launch 5G. Since then, its collaboration with Telenor has driven a comprehensive transformation of network infrastructure. By integrating state-of-the-art equipment from Ericsson and Nokia, the network has achieved faster and more stable connections and improved energy efficiency, supporting sustainable operations.

Simultaneously, the 4G network has been significantly enhanced, with capacity increasing by up to 300% using existing infrastructure, further bolstering Sweden's robust telecommunications framework.

Looking Ahead

Björn Lindberg, Network Expert at Tele2, noted, "After three years of intense work, we are now nearing the completion of our largest network expansion ever. With 5G+, the latest technology, and entirely new equipment, we can offer our customers a fast, stable, and energy-efficient network. This is world-class connectivity for the future, and we are proud to deliver it today."

Sara Kebert, Network Expert at Telenor, highlighted the next phase, stating, "With the modernization of the existing network complete, we look forward to an expansive rollout that densifies and improves capacity nation-wide. Starting in January, we will accelerate this new expansion."

The expanded 5G coverage positions Sweden as a global leader in telecommunications innovation, setting the stage for the widespread adoption of next-generation connectivity solutions.

Nokia and EOLO Launch Europe's First 5G mmWave Network

Nokia has signed a four-year deal with EOLO—the first benefit corporation in the Italian telecommunications sector and a leader in FWA (fixed wireless access) connectivity—to deploy the first 5G standalone mmWave Radio Access Network in Europe.

The deal supports EOLO's ambition to connect underserved communities, helping to bridge the digital and speed divide in Italy.

Nokia Portfolio Integrations
Nokia will supply equipment from its industry-leading 5G AirScale portfolio including Nokia's next-generation, AirScale baseband solutions, Massive MIMO radios, and Remote Radio Head products. These are all powered by its energy-efficient ReefShark System-on-Chip technology and, when combined, provide superior coverage and capacity. Nokia will also provide its compact, Shikra mmWave radios to achieve incredible 5G capacity, ultra-wide bandwidth, and coverage for a premium user experience. Nokia's Shikra mmWave radios are well-suited to dense, urban environments (such as shopping malls or sports stadiums) and supports services such as real-time, multi-user, ultra-high-definition (UHD) video streaming or augmented reality (AR).

Nokia's Shikra mmWave solution also delivers fixed wireless access (FWA) services to rural or underserved communities, where traditional wired infrastructure may be impractical or expensive to deploy. Included in the solution is Nokia's FastMile 5G mmWave outdoor receiver, which reliably connects homes to the mmWave network. The outdoor receiver allows operators to use low-cost mmWave spectrum to provide consistent, reliable, ultra-fast wireless broadband services in areas where fiber can be challenging to deploy.

FWA to Bridge the Digital Divide
Guido Garrone, CEO, EOLO, commented, "This is clear evidence of our ambition to build a FWA network able to offer the best experience for our customers (retail, business, and wholesale), reaching all the areas of our country not connected by FTTH technology.

"Together with Nokia and the other partners involved in the deal, we will be able to bring FWA connectivity up to 1 Gbps to the whole Italian market. By installing a new 5G infrastructure, we will see the further development of our FWA network that will continue to improve the experience for our customers as well as bridge [the] digital divide and digital speed divide. I look forward to working closely and collaboratively with Nokia and our other partners on this project."

VTT and Partners Reach Milestone in Maritime 5G Connectivity

In a significant development for maritime communications, the VTT Technical Research Centre of Finland and a consortium of industry leaders have successfully demonstrated a cutting-edge solution to extend high-speed, low-latency 5G connectivity beyond coastal regions.

This achievement, part of the EU-funded 5G-ROUTES project, marks a significant leap towards enhancing maritime connectivity, improving vessel operations, safety, and the passenger experience at sea.

While 5G has revolutionized communications on land, achieving similar connectivity at sea has remained a challenge. Most vessels lose signal as they move further from shore. The trial, conducted near Turku, Finland, introduced a multi-hop5G solution that extends coverage up to 10 kilometers offshore, filling a critical gap in maritime communication.

The trial, led by VTT with support from Vediafi Oy, Cumucore, Airbus, and major telecom companies including Ericsson, Nokia, Digita, DNA, Telia, and Goodmill Systems, demonstrated a seamless integration of public 5G networks, private vessel-to-vessel 5G communications, and satellite connections to ensure continuous coverage as vessels move farther from the coastline.

Breakthrough in Maritime 5G Connectivity and Applications
The system works by using a combination of public 5G NSA (Non-Standalone) networks for coastal coverage, private 5G SA (Standalone) networks for onboard communication, and satellite connections as a backup. During testing on the Turku-Stockholm maritime corridor, the system enabled reliable, high-bandwidth data transfer between two vessels—one close to shore, the other 10 kilometers offshore. The trial successfully supported various real-time applications, from video streaming and virtual reality collaboration tools to multiplayer gaming between vessels.

InCoax Networks Expands in Finland to Boost Broadband Speeds

InCoax Networks is reportedly ramping up its operations in Finland as part of the nation's initiative to enhance internet speeds.

Finland's efforts to boost broadband speeds form part of the broader European digital agenda, however, the country is facing challenges due to outdated infrastructure in many properties. Older copper-based technologies, such as DOCSIS 3.1 and VDSL, fall short of the nation's ambitious targets, creating a need for advanced upgrades.

InCoax Networks is positioning its MoCA Access technology as a key solution, offering symmetrical 2.5 Gbps services that can meet and exceed the country's broadband goals.

As a result, Helge Tiainen, Business Development Director at InCoax Networks, indicated that the company expects significant sales growth in Finland.

Quicker Speeds, Vast Connections

The country aims to ensure all residents have access to at least 100 Mbps speeds by 2025, with plans to achieve symmetrical 1 Gbps speeds by 2030. In the past six months, four operators have successfully carried out pilot installations of InCoax Networks' system solution. Currently, around 2,000 apartments are connected, and projections suggest this number could grow to 20,000 by 2025.

InCoax Networks provides a cost-effective solution for fiber operators by using existing cable infrastructure in buildings to quickly enhance internet speeds. Finnish regulations, which grant building owners ownership of new fiber networks, often discourage operators from investing in new installations. By leveraging coaxial cables, InCoax Networks avoids extensive network upgrades and minimizes tenant disruptions, offering a practical alternative for broadband improvements.

InCoax Networks' technology allows for rapid installation in properties, enabling operators to seamlessly connect apartments as tenants sign up for the service. This efficiency shortens the time to generate revenue and enhances returns on investment (ROI).

The company's expansion in Finland bolsters its position in the broadband technology sector and supports the movement towards sustainable and efficient broadband delivery throughout Europe.

Siemens Partners with LS telcom to Expand Private 5G Solutions

Siemens has announced a strategic partnership with LS telcom to bring Siemens' private 5G wireless technology to a broad spectrum of applications across various industries.

The collaboration aims to deliver a robust and versatile private 5G offering, catering specifically to industrial customers seeking advanced connectivity solutions. Through this alliance, the companies plan to accelerate the adoption of private 5G networks, enhancing operational efficiency and supporting cross-sector innovations.

New Private 5G Infrastructure

Siemens has introduced a new private 5G infrastructure, allowing companies to independently manage a self-sufficient and highly-efficient wireless network. This solution aims to enhance business and production processes by optimizing operations and cutting costs.

Through this initiative, Siemens will offer an end-to-end service package, covering everything from use case consulting, licensing, and network planning to the full deployment of 5G systems. This comprehensive approach is designed to deliver customized, future-ready 5G solutions that cater to the evolving needs of various industries, ensuring sustainable improvements and streamlined operations.

"We are very pleased to announce our partnership with Siemens to provide our customers with a 5G infrastructure developed and produced in Germany for network independent industrial applications. We greatly appreciate working with such an experienced and renowned partner as Siemens. We are convinced that this cooperation will offer our customers considerable added value and future-oriented solutions," said Roland Götz, Chief Operating Officer of LS telcom.

WATCH
LIVE
WATCH **NOW!**

Visit **telecomreview.tv** and get enlightened about the latest news, trends, services, projects and plans in the ICT industry, featuring fundamental interviews with esteemed leaders in the telecom and ICT sector.

Leading Global ICT Media Platforms

Middle East

Arabia

Africa

Americas

Asia

Europe