GTI Industry Briefing

August, 2024 | No. 39

Contents

GTI Summit · Shanghai 2024 Highlights "5G-A×AI" to Empower Various Industries (1/2)

GTI Summit · Shanghai 2024, with the theme of "**5G-A×AI**", was held on June 26 to bring together insightful leaders, innovators and creators from operators, vendors and verticals to gain up-to-date information on the development strategy and future evolution of the industry, discuss trends on integration of 5G-A and AI, as well as learn the innovative applications to create more value. *(Click Here to watch speech videos)*

Mr. Craig Ehrlich, Co-chairman, GTI
The summit focuses primarily on GTI 3.0, 5G-Advanced, and AI technology. It will further promote the integration and development of 5G and AI, and provide more thoughts and suggestions for the future development of the information and communication industry.

Mr. Zhao Zhiguo, Chief Engineer, MIIT of China
Currently, a new round of technological revolution and industrial transformation is developing in depth. New generations of information technologies such as 5G and AI are rapidly evolving, integrating, and fostering innovation.

Mr. Tomas Lamanauskas, Deputy Secretary-General, ITU
The powerful combination of AI and 5G has a huge potential to help more effectively address growing cybersecurity challenges, and presents tremendous opportunities to improve spectrum research and management for the benefit of all spectrum-based technologies.

Mr. Mats Granryd, Director General, GSMA
By the end of this decade, more than half of the mobile connections will be on 5G. The development of 5G is accelerating, and we have witnessed a plethora of use cases emerging across various industries.

Mr. He Biao, CEO, China Mobile
We have collaboratively promoted the widespread adoption of information services, accelerating the innovative development of 5G, 5G-A, and AI, bringing digital and intelligent technologies into thousands of households and empowering numerous industries, thus injecting vigorous momentum into high-quality development of global economy and society.

Mr. Xu Ziyang, Executive Director & CEO, ZTE
At ZTE, we believe that there are four capabilities that collectively drive industrialization: digitalization, networking, intelligence, and low-carbon development, which will advance computing and network evolution towards an intelligent future.

GTI Summit · Shanghai 2024 Highlights "5G-A×AI" to Empower Various Industries (2/2)

Mr. Richard Liu, President ICT Marketing & Solution Sales, Huawei
The next decade will be one of deep integration and accelerated development of 5G-A and AI. Let us work together to build a network-driven intelligence, promote intelligence-driven networking, and seek new commercial value.

Mr. Masaaki Koga, Executive Director, KDDI
KDDI is now striving to create new services that can develop smart cities, smart transportation, and drone delivery. These innovations will unlock immense potential, enabling a wide range of AI services for various industries with the support and empowerment of AI.

Mr. Frank Meng, Chairman, Qualcomm China
Disruptive technological innovations have continuously emerged, providing a technical foundation for new productivity dynamics. The evolution of 5G technology has reached its midpoint, and 5G-A is accelerating its implementation and supporting more extended features.

Mr. Arpit Joshipura, GM of Networking, IOT & Edge, The Linux Foundation
Thanks to the effort from China Mobile, ATT and several other global players, we got to an automation platform called ONAP, which is globally deployed today.

Mr. Javan Erfanian, Wireless Technology Senior Consultant & Strategist
I am very honored to witness the contributions that organizations like ITU, GSMA, and GTI have made to the industry. I also appreciate vey much the active collaboration and their strong cooperation with other partners.

Ms. Nicole McCormick, Senior Principal Analyst, Omdia
For high-quality business solutions, artificial intelligence presents us with unprecedented opportunities, also offering unprecedented opportunities for participants in different markets.

Mr. Bo Hagerman, Advanced Technology Director APAC, Ericsson
We believe that standardization, credibility, and security are issues that need to be addressed at present. We must have high-quality data and train algorithms with high-quality.

Mr. Brian Cho, Chief Solution Architecture Officer, Nokia
It's essential to embrace innovation and promote it with open arms rather than allowing regulation to stifle innovation. Therefore, from a regulatory perspective, finding the right balance is crucial.

Mr. Xia Yang, VP of Global Carrier Product and Technology, OPPO
If your network can further empower artificial intelligence, it means that as a network operator, you can gain a competitive advantage. Additionally, we discussed devices and cloud-related services, where end-to-end devices can reveal more possibilities

GTI and GSMA Jointly Signs Cooperation Agreement on 5G-A×AI

On June 26, at the GTI Summit during MWC Shanghai, GTI and GSMA formalized a new partnership aimed at driving innovation in the telecommunications sector. The partnership between the GTI 5G-A×AI Development Program and GSMA Foundry will launch a challenge later in 2024, focused on the development of converged solutions utilizing 5G Advanced and Artificial Intelligence.

Key Points of the Partnership:

- **Focus Areas:** The partnership will focus on developing converged solutions using 5G Advanced (5G-A) and Artificial Intelligence (AI).
- **Launch of Industry Challenges:** A new challenge, set to launch later in 2024, will promote the development of these converged solutions.
- **Objectives:** The GTI 5G-A×AI Development Program, initially launched at MWC Barcelona 2024, aims to foster intelligent development through open laboratory environments, an innovation community, and exploration of innovative 5G-A×AI integration use cases.

The GTI "5G-A×AI Tour" Showcases New Achievements in Digital Integration and Expands Innovation Collaboration

On June 25, GTI, in collaboration with GSMA, hosted the "5G-A×AI Experience Day" in Shanghai. Executives from over 20 international operators, industry partners, and organizations from more than ten countries and regions participated in the tour. They toured and experienced China Mobile's 5G-A×AI integrated innovation demonstration projects, exploring the cutting-edge applications and innovations of 5G-A and AI in modern urban and industrial development.

The tour featured visits to several of China Mobile's innovative application cases, including the world's first 5G-A (V2X) commercial autonomous vehicle network demonstration route, 5G unmanned farm demonstration base, and COSCO smart warehouse and logistics. These examples highlighted the significant potential of 5G-A and AI integration in empowering the development of modern cities and industries.

GTI 5G-A×AI Development Program Officially Launched

The GTI 5G-A×AI Development Program was officially launched at the press conference held on May 25 2024, to promote the integrated innovation of 5G and AI in technology, business, ecology, and commerce, and two-way empowerment. Thus, 5G is smarter and AI is more ubiquitous, which will more effectively support the development of digital intelligence in economy and society, and create new revenue space for the industry.

Three core tasks were announced at the press conference. **First, Build Open Labs** to provide basic environment, equipment facilities, industry application scenarios and other resources for 5G-A×AI integration innovation, and carry out the R&D, testing and demonstration of new technologies and solutions. **Second, Build an Open Collaborative Innovation Community,** with an online platform for "Communication and Sharing" and "Supply and Demand Matching", and jointly carry out cutting-edge exploration, technical research, testing and iterative optimization. **Third, Explore Innovative 5G-A×AI Integration Use Cases,** and condense them into replicable business model templates, so as to provide references for value creation and monetization.

At the press conference, representatives from the first batch of participation partners shared their valuable views and support to the integration of 5G-A and AI in the form of video recording or onsite short speeches. They shared the same views on the role of mutual promotion and integrated development between 5G-A and AI, which will accelerate the progress towards new era of 5G-A^2, creating new opportunities and values for entire industry.

GTI & Huawei 5G-A×AI Open Lab Launched

✓ Jointly advance explorations and efforts on technical integration, business innovation, ecological incubation and monetization

GTI & ZTE 5G-A×AI Open Lab Launched

✓ Jointly promote global integration of 5G-A×AI, and support research, test and demonstrations for new technologies and new capabilities

*Preview of GTI Forum on Digital Intelligence · Hong Kong

Event Description

The 1st "GTI Forum on Digital Intelligence • Hong Kong" will be held on 10th-11th September, 2024, organized by GTI and jointly hosted by China Mobile, the Hong Kong Polytechnic University, and the Chinese University of Hong Kong. Top experts, leading university scholars, outstanding young talents in the AI field, as well as senior managements and experts in various industries will be invited to share views on the frontier theories and technologies, innovative applications and development trends in AI from both the academia and industry angle. Driven by the cutting-edge technologies and application scenarios, the forum aims to promote the talent cultivation and scientific research in AI, accelerate the digital and intelligent transformation of industries, to drive AI forward, for good and for pragmatic, creating a better future for the human society.

GTI Forum on Digital Intelligence
10th-11th September, 2024   Hong Kong, China

Event Agenda

GTI Forum on Digital Intelligence · Hong Kong			
Date	Event	Time	Details & Register
10th Sep.	Main Forum	09:30-17:00	**Visit Here** for more details

Click Here to register |
| 11th Sep. | Sub-Forum 1 (Namely The 40th GTI Workshop) (Theme: 5G-A×AI) | 09:30-12:00 | |
| | Sub-Forum 2 (Theme: AI Technology and Ethics) | 14:30-17:00 | |

China Mobile Yancheng and Huawei Pilot Pisa Antenna to Build Green 5G Networks for High-Speed Railway

With the economy rebounding and travel increasing, high-speed railways, as mobile hotspots, face a surge in network service demand. Traditional railway sites use two antennas to cover both directions along the tracks, resulting in high outward energy dissipation and poor user experience, especially near towers and cell edges. Nearby residents often suffer from network interference due to dedicated railway networks, a problem exacerbated by rising demand and increased traffic in public networks.

China Mobile Yancheng and Huawei have deployed the 5G Integrated Pisa Antenna, which integrates two antenna arrays into one. This design allows dynamic power adaptation based on the train's position, enhancing coverage between towers. The antenna's horizontal rolling technology focuses energy precisely on the track, reducing signal weakness under towers and minimizing interference with nearby public networks. The Integrated Pisa Antenna also doubles the number of channels without increasing antenna size, improving deployment efficiency by 50%.

China Mobile Yancheng's successful verification of this solution sets the stage for advanced 5G high-speed railway networks globally. China Mobile Yancheng and Huawei will continue developing more efficient and effective 5G networks to support Yancheng's social and economic growth and improve residents' quality of life.

ZTE and Partners Celebrate GTI 5G-A×AI Open Lab Inauguration in Shanghai

ZTE Corporation, alongside Qualcomm, Siemens, and Shanghai Jiao Tong University, inaugurated the GTI 5G-A x AI Open Lab, known as "Infinity Lab," in Shanghai. This lab is now part of the GTI 5G-A x AI Open Labs network.

Huang Yuhong stated that the lab will drive global 5G-A x AI integration by providing essential infrastructure for research, testing, and demonstration of new technologies. Zhang Wanchun emphasized ZTE's commitment to collaborating with global partners to foster technological innovations and industrial applications, aiming to advance a digital and intelligent society.

The Infinity Lab will focus on:

➢ **5G-A Intelligent Energy Efficiency**: Exploring AI applications to enhance energy-saving efficiency and promote sustainable network development.

➢ **5G-A Large Language Models**: Building new network capabilities and service models integrating cross-domain fusion and multi-agent collaboration.

➢ **5G-A Digital Twins**: Developing end-to-end digital twin capabilities and offering a Digital Twin as a Service (DTaaS) platform for new technology and scenario development.

Swisscom Selects Ericsson to Future-proof Mobile Network

Ericsson and Swisscom announced the expansion of their longstanding partnership with a new multi-year agreement to boost its innovation ecosystem and drive the next period of growth and energy efficient performance of the service provider's 5G network in Switzerland.

The agreement introduces the Ericsson Intelligent Automation Platform (EIAP) for comprehensive network management and automation. This allows Swisscom to use AI-powered rApps from Ericsson and other contributors to the open EIAP ecosystem. The platform and Software Development Toolkit (SDK) will improve subscriber services and deliver operational savings. Swisscom will also renew its Ericsson Expert Analytics deployment to resolve subscriber issues in real-time using AI.

Additionally, the contract includes Ericsson's energy-efficient dual-band Radio 4490 and a next-generation RAN processor from Ericsson's RAN Compute portfolio. These solutions support all radio technologies with low energy consumption and real-time AI processing. Swisscom plans to expand mid-band TDD coverage with Ericsson's Massive MIMO portfolio over the next three years.

Furthermore, Swisscom will also continue spectrum refarming to New Radio (NR) in preparation for 5G Standalone deployment and new services. The new deal includes Ericsson's Cloud Native Infrastructure solution (CNIS), enhancing network reliability and reducing overheads. This deployment involves partners like Extreme Networks and Dell Technologies to ensure top network performance.

Last but not least, the agreement strengthens Swisscom and Ericsson's collaborative relationship, ensuring access to the latest Ericsson software innovations.

Nokia and stc Group Optimize Network with AI-powered MantaRay Cognitive SON Solution in Saudi Arabia

Nokia announced that it has successfully deployed its MantaRay Cognitive SON, the AI-powered self-organizing networks solution, in stc Group's (stc) commercial network for the first time.

MantaRay SON is an industry-leading network optimization and automation platform that uses self-configuring modules to boost network performance and efficiency. It can be tailored and deployed to optimize specific software applications and to address unique operational challenges. Cognitive SON is an AI-powered software feature of MantaRay SON that enables autonomous RAN operations.

Cognitive SON was implemented in a period of high traffic, during which it processed over 10,000 actions, resulting in an increased utilization rate of approximately 30 percent on loaded cells and 10 percent average improvement on user throughput. Despite traffic increasing by 40 percent during this period, stc's network successfully maintained consistent connectivity. Autonomous RAN operations also reduced manual work and improved network quality.

The development of an AI-powered network module expands stc's suite of advanced AI solutions. It offers a wide range of AI-driven capabilities that help accelerate digital transformation and enable sustainable growth, including enhancing radio network energy efficiency, which resulted in a 13 percent reduction in energy consumption across stc's 4G and 5G networks in 2023. By 2025, stc's AI-powered products will cover over 200 systems, enabling further cost efficiencies.

CICT and CMCC Jointly Initiate Multiple ISAC Application Pilots

CICT launched a new series of high-performance ISAC (Integrated Sensing And Communication) base station, including 4.9G ISAC AAU and ISAC BBU products.

4.9G ISAC AAU adopts A-transmitter-A-receiver single site mode, which can realize communication and sensing functions with one base station, and simultaneously realizes air and ground coverage with -36°~24° wide angle, combining cost-effectiveness and high-precision sensing. With the perception processing board and intelligent fusion board, the ISAC BBU can calculation and track the position of the perception target. And the multi-station ISAC BBU coordination can support the de-duplication and fusion of the multi-station perception data, further improve the accuracy and efficiency.
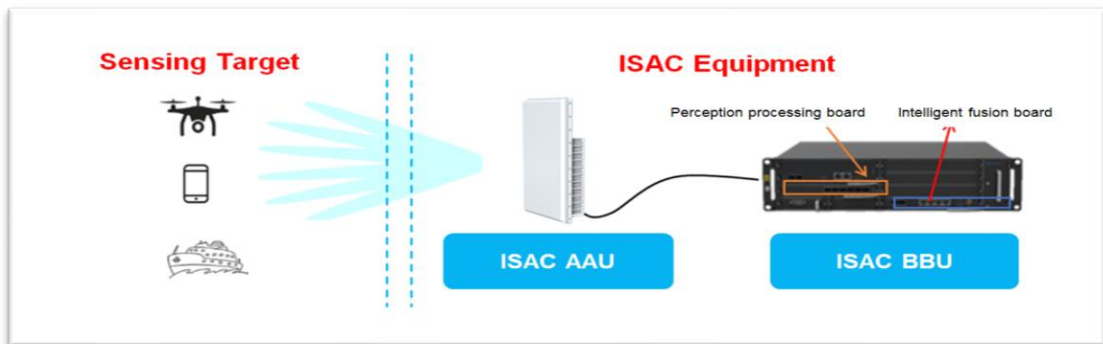
In June, CICT and CMCC Qingyuan completed low-altitude tourism applications trial which can simultaneously accomplish the communication and security monitoring functions in hot air balloons. When tourists are in the balloon, they can make calls, video, and even carry out live broadcasting services just like on the ground. At the same time, the base station also senses the balloon's position and ensures that it is on a preset track.

Nokia to Deliver Full Core Network, Security, and Managed Services to Norlys of Denmark with Red Hat OpenShift

Nokia announced that it has been selected by Norlys, the owner of Telia Denmark and the largest integrated energy and telecommunications operator in Denmark, to provide its mobile core network and managed services. The deal, combined with a RAN contract signed with Nokia in 2021, will enhance Norlys' mobile network performance and reliability.

Reflecting Nokia's commitment to driving innovation and supporting the digital transformation of its customers and partners, the latest deal will enable Norlys to provide a full-service solution to its customers and open up new growth opportunities in Denmark.

The deal covers the deployment of Nokia's 4G/5G packet core, and IMS and SDM solutions, which will support voice and data services for Norlys subscribers.

The core network applications will run on Red Hat OpenShift, the industry's leading hybrid cloud application platform powered by Kubernetes. Red Hat OpenShift is integrated into Nokia Cloud Platform, providing a cloud-native and scalable infrastructure.

Nokia will secure the operator's network through its NetGuard telco grade Endpoint Detection and Response, Privileged Access Management, and Certificate Management solutions.

ZTE Launches the Nebula Telecom Large Model, Opening a New Paradigm for Highly Autonomous Networks

Addressing complex issues, the Nebula Telecom Large Model accelerates highly autonomous networks using the "ZTE Digital Nebula" assemblable architecture. This model enables cross-domain and single-domain collaboration, empowering full-scenario agents. It promotes a transformation from "human+machine" to "machine+human", reshaping the operation system.

ZTE introduces the agent factory, a platform for agent development and maintenance, efficiently generating and managing materials, knowledge, and skills. The large-model agent factory produces agents industrially, helping operators refine application development and product forms. In complex scenarios, agents orchestrate human-machine interaction using LUI mode and integrate traditional and generative AI models, evolving the operation system.

ZTE Nebula Telecom Large Model

Focusing on high-value scenarios and effectiveness, agents enable applications based on the Nebula Telecom Large Model. ZTE's Network Insight Expert understands user intents, breaks down workflows, and provides multi-object solutions, simplifying network issues like traffic excitation and network planning. In monitoring and troubleshooting, the Monitoring Expert, centered on policy agents, uses multi-agent coordination to resolve issues and diagnose faults, improving fault handling efficiency. The iAssurance Expert, leveraging closed-loop plan generation and multi-agent collaboration, responds to emergencies in real time, achieving the first large-model-based commercial practice in major event assurance, reducing the workload from six man-days to one.

Huawei Announces Plan to Bring AI to Networks to Elevate Network Productivity

At the MWC Shanghai 2024 5G-A & AI Roundtable, Eric Zhao, Vice President and Chief Marketing Officer of Huawei Wireless Solution, unveiled a plan to integrate AI into networks. The plan focuses on developing an ecosystem of RAN Intelligent Agent in partnership with operators to enhance network productivity. The first phase aims to cover 1,000 site engineers and 10,000 sites across Hangzhou, Guangzhou, Bangkok, Jinan, and Shenzhen within six months.

Despite impressive advancements, mobile networks face challenges related to complex operations, diverse network characteristics, and experience-driven operations. To address this, Huawei proposed the RAN Intelligent Agent to transform network operations, experience, and services. This AI integration aims to boost network productivity through role-based chatbots and scenario-based solution automation.

Reshaping O&M: The RAN Intelligent Agent simplifies processes and increases efficiency. An example is the AI-based field maintenance engineer copilot, which autonomously generates solution policies to handle issues like optical path faults with tenfold efficiency.

Reshaping Experience: The RAN Intelligent Agent optimizes network performance and energy saving through real-time sensing and policy generation. In one case, it maintained stable operations for thousands of hours across 223 cells, maximizing performance while minimizing energy consumption.

Reshaping Services: The RAN Intelligent Agent enables real-time evaluation of network resources, allowing operators to provision new services as needed and ensure a consistent service experience. For instance, the 5G-A livestreaming assurance package provides deterministic uplink speeds for fruit farmers to reach customers via livestreaming, showcasing innovative business models for monetization.

Nokia and Telecom Egypt Bring 5G to Egypt for the First Time

Nokia announced a new partnership with Telecom Egypt to bring 5G technology to Egypt for the first time. The collaboration aims to revolutionize the country's telecom landscape by introducing the transformative power of 5G to cities including Alexandria, Aswan, Cairo, Giza, and Luxor. Nokia will provide its comprehensive AirScale portfolio to deliver an exceptional network experience to Telecom Egypt's customers including faster data speeds, enhanced performance, and capacity. Deployment will take place later this year.

Under the agreement, Nokia will deploy 5G radio access network (RAN) equipment from its industry leading AirScale portfolio, comprising baseband units and its latest generation of Massive MIMO radios. These solutions utilize Nokia's energy-efficient ReefShark System-on-Chip technology, delivering extensive 5G capacity and coverage as well as enabling easy deployments. Nokia will also offer various professional services, encompassing deployment, integration, and network optimization.

5G technology will bring numerous benefits, including increased capacity for seamless connectivity in some of Egypt's most densely populated areas. This will support a wide range of applications and services, resulting in faster downloads, smoother streaming, and improved network performance. This advancement will enable unprecedented levels of innovation and efficiency across various sectors, empowering organizations to thrive in today's fast-paced digital landscape.

Huawei Embraces Mobile AI to Build New 5.5G Experience

Fang Xiang, Vice President of Huawei Wireless Network Product Line, opened the Roundtable. "AI's rapid advancement is driving industries to adopt more intelligent solutions. Mobile AI requires networks to offer large uplink, low latency, and wide coverage," Fang noted. "This pushes us to achieve new breakthroughs with GigaGreen for 5.5G to meet these needs and explore new opportunities in the mobile AI era."

➢ **New Momentum in Service Development:**
5.5G and AI are revitalizing emerging services in content creation, interaction transformation, and adaptation to more capable terminals, leading to a surge in mobile data traffic. This demands robust networks and allows operators to diversify monetization strategies.

➢ **New Momentum in Network Construction:**
Key insights included leveraging all bands and 5.5G technologies for service customization, shifting from wide to in-depth coverage, and enhancing multi-antenna capabilities to boost network capacity and energy efficiency.

Fang Xiang

➢ **New Momentum in Technological Innovation:**
Huawei highlighted GigaGreen for 5.5G technological innovation. Incorporating ultra-wideband, multi-band serving cell (MBSC), and multi-antenna technologies, GigaGreen enables networks to provide large uplink and low latency with a simplified, green architecture. This maximizes experience and spectral efficiency, helping operators unlock new value and drive growth.

Huawei Intelligent Auto-focus Antenna Enhances Network Coverage Flexibility in All Scenarios

With the rapid development of 5G and 5.5G technologies, network sites and traffic demands are soaring. High user mobility in areas with fluctuating foot traffic requires networks to dynamically ensure high capacity in dense areas and conserve energy in less crowded areas. Traditional antennas, with limited remote capabilities and beam adjustment, make this challenging. Network O&M and optimization require costly site visits.

To address this, China Mobile Research Institute and Huawei introduced the Auto-focus Antenna, enabling remote access to site parameters and flexible beam coverage based on user distribution. This innovation improves network O&M efficiency and reduces OPEX. The antenna features Remote Azimuth Steering (RAS), allowing both vertical and horizontal beam adjustments. This supports real-time intelligent beam adjustments in scenarios like high-speed railways, enhancing network coverage precision and energy utilization.
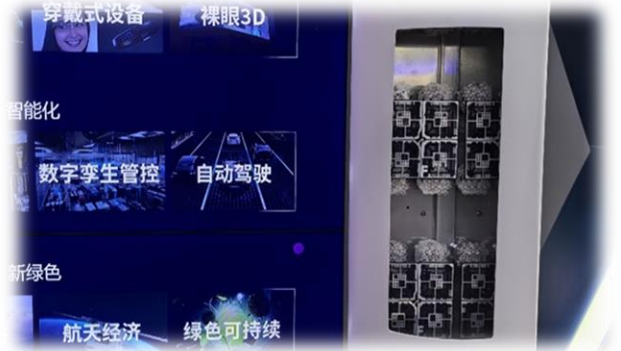
The Auto-focus Antenna also includes a high-precision self-sensing unit for remote, automatic parameter acquisition, eliminating the need for site surveys and reducing O&M costs. Its compact design and cylindrical shape ensure efficient and reliable deployment.

Sun Youwei, President of Huawei Antenna Business Unit, said, "As mobile networks become more intelligent, continuous innovation in antenna design, architecture, energy efficiency, and digital capabilities is essential for accelerating network evolution and sustaining business success."

Nokia and Telefónica Collaborate to Develop the Private Network Market

Nokia announced an agreement with Telefonica, through its areas Telefónica Mobile Spain and Telefónica IoT & Big Data Tech Spain and Telefonica IoT & Big Data Tech, to drive the development of the 5G private network market in Spain.

Under the three-year umbrella agreement, 100 Nokia Digital Automation Cloud (DAC), Modular Private Wireless (MPW), MX Industrial Edge (MXIE) solutions, and Industrial devices will be deployed to meet the needs of key mission-critical industries such as ports, manufacturing, and logistics to improve productivity, worker safety, and sustainability in the Spanish Enterprise market.

Nokia one platform for industrial digitalization is comprised of Nokia Digital Automation Cloud (DAC), MX Industrial Edge (MXIE), Industrial devices, and digitalization applications. It is designed to simplify digital transformation for an array of industries by delivering a secure, reliable, and high-performing wireless infrastructure and the needed on-prem compute for tapping into real-time OT data to accelerate digital transformation.

This collaboration is a significant step toward boosting Industry 4.0 in the enterprise Spanish market, allowing industries to become data-driven, enhancing Telefonica's network capabilities and offering a clear path to migrating use cases to 5G.

ZTE at WAIC 2024: Driving Digital Infrastructure and AI Transformation for Openness and Win-win

Under the theme "Shaping the Intelligent Future with AI," ZTE presented its full-stack, full-scenario intelligent computing solution, covering computing power, networks, capabilities, intelligence, and applications. ZTE highlighted achievements in connectivity, computing power, industrial digitalization, and terminals. At the "AI Innovation Ecosystem Forum," industry partners and experts shared insights to build a thriving intelligent computing ecosystem. ZTE also participated in the official livestream, discussing how to establish a high-performance, reliable computing foundation and promote a dynamic intelligent computing ecosystem.
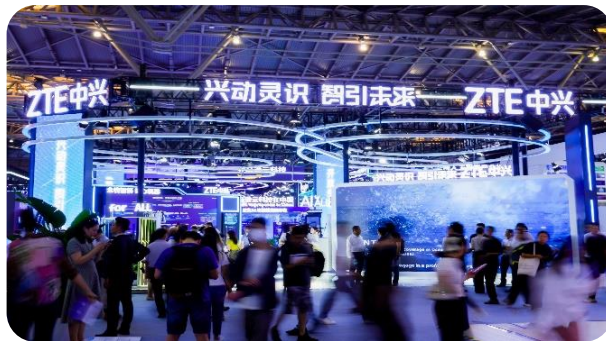
➢ **Full-Stack Intelligent Computing Solution**

Generative AI is driving growth and innovation. ZTE's full-stack solution supports the digital transformation of various industries. For intelligent networks, ZTE offers a range of products to create a diversified, efficient computing resource pool compatible with mainstream GPUs. The intelligent computing platform provides toolkits and engines to simplify training, fine-tuning, and deployment of large models, enabling the deployment of trillion-parameter models on a single GPU. ZTE's Nebula Large Model has been applied in R&D, telecom O&M, urban governance, and industrial parks, boosting productivity.

➢ **Open Ecosystem**

As the AI industry evolves, challenges like complex applications and lengthy R&D processes emerge. ZTE aims to break down silos, drive decoupling, and enable large model training on various GPUs. Collaborating with GPU manufacturers, model developers, telcos, and industry partners, ZTE builds an open AI ecosystem. Over 1,000 industry partners work with ZTE to advance digital transformation in sectors like manufacturing, government, water management, and urban transit.

➢ **Intelligent Manufacturing**

The manufacturing sector faces challenges like rising costs, market competition, inventory issues, and low production flexibility. ZTE uses digital technologies to empower intelligent manufacturing, applying robotics, digital twins, AI, and industrial metaverse in production scenarios to reduce costs and improve efficiency. ZTE's factories are evolving towards high flexibility, automation, and collaboration.

➢ **AI for All: Building Full-Scenario Intelligent Ecosystem 3.0**

Under the "AI for All" strategy, ZTE develops various AI terminals. At the conference, ZTE showcased innovative AI applications in areas like eyewear-free 3D display, simultaneous interpretation, fraud detection, business and content creation, AI gaming, and image generation.

➢ **Bringing Intelligence Everywhere**

As AI drives industrial transformation, the fusion of 5G-A and AI enhances mobile communications. ZTE's Digital Nebula architecture offers solutions encompassing networks, computing, clouds, and services, creating efficient digital foundations. By exploring full-stack AI solutions for 6G networks, ZTE promotes upgrades in service models, network capabilities, and spectrum efficiency.

ZTE has implemented practices like building 5G-A production lines, leveraging 5G for higher efficiency. Using industrial large models, ZTE has shortened troubleshooting cycles and reduced workforce needs for quality inspections.

Huawei Green Antennas Deployed in Energy Efficient Networks, Bringing China Closer to Achieving Carbon Goals

Recently, Northwestern China saw the first deployment of Huawei's green antennas. These antennas enhance base station energy efficiency, reducing power requirements by 2 dB while maintaining coverage, leading to average energy savings of 20%. This advancement benefits operators by improving 5G network energy efficiency and supporting national carbon neutrality goals.

The increase in 5G multi-band and multi-port antennas due to rising subscriber numbers has significantly raised base station power consumption. As a result, energy efficiency, user experience, and sustainable network development have become crucial in the communications industry. Traditional six-band antennas with extensive cabling suffer from feeder loss, a persistent issue. Huawei's new energy-efficient antenna architecture eliminates internal cables, improving RF system energy conversion. Huawei also uses automatic laser welding technology to avoid pollution and ensure precision.

Tests show green antennas boost RF energy efficiency, reducing energy use without sacrificing coverage. Live-network data indicates these antennas can cut RRU power output by about 20% while maintaining coverage. Deploying these antennas across all bands at a site can save over 7500 kWh annually, equivalent to reducing carbon emissions by over 1600 kg. Huawei's green antennas allow operators to either enhance user experience without increasing power consumption or reduce power consumption while maintaining user experience. They improve network coverage by 1.5 to 3 dB compared to older antennas, marking a breakthrough in reducing RF system power consumption.

Spain's Aire Networks Selects Nokia Mobile Core Solutions to Enhance Customer Experience

Aire Networks has chosen Nokia mobile core solutions to modernize the operator's network in Spain and improve the customer experience with expanded coverage areas, faster data speeds, and enhanced network reliability.

The deal, which includes Nokia voice core, packet core, subscriber data management, policy control and signaling will increase the operator's network capacity. Nokia's solutions will support Aire's network evolution to unlock new services and business models that deliver faster time to value and revenue streams.

As part of the agreement, Aire Networks will utilize Nokia's MantaRay NM solution for a consolidated and automated network view that optimizes network monitoring and management.

The operator already uses a variety of Nokia products including Switching Fabric, which connects Nokia infrastructure to Aire's network assets.

ZTE Pioneers a New Era for Smart City Parks with 5G-A Technology

➢ **R Experiences: A New Era of City Park Exploration**

City parks have evolved into dynamic destinations for exploration and relaxation, enhanced by augmented reality (AR) tours. These tours blend virtual elements with real scenic spots, allowing visitors to discover plant secrets or embark on treasure hunts, creating a magical experience.

➢ **5G-A Powered Exploration**

Enabled by 5G-A technology, AR delivers vivid images, videos, and 3D models at speeds up to 6Gbps, seamlessly merging reality with fantasy. AR guides enhance experiences in science and historical museums by transcending time, offering futuristic and historical insights.

➢ **Popular Activities: Seamless Connectivity**

Events like cherry blossom festivals, starry-sky camping, and weekend markets thrive with 5G-A's 10Gbps CampSite, eliminating network congestion. With a capacity exceeding 25Gbps, sharing moments in real-time becomes effortless.

➢ **Cable-free Live Streaming: Authentic Night Shows**

Shanghai's Summer Night Life Festival transforms parks into vibrant stages. 5G-A's ultra-low latency and high reliability enable live broadcasting without cables, allowing cameramen to capture moments freely. Real-time transmission of ultra-high-definition video ensures seamless live streams.

➢ **Cluster-DRS+ Solution: Drone-centric Stable Connection**

Century Park's 24/7 access policy necessitates enhanced security. Drone security patrols, enabled by China Telecom's Cluster-DRS+ solution, provide real-time high-definition video transmission, extending 5G coverage to 300 meters. Shared 5G resources ensure stable drone performance.

➢ **Innovative Drone Services**

During MWC Shanghai 2024, drone delivery services by China Telecom, ZTE, and Antwork Technology will showcase on-demand orders and precise navigation. Drones act as "aerial couriers" for food and emergency services, introducing innovative possibilities to smart city parks.

➢ **5G-A ISAC: Ensuring Low-Altitude Security**

5G-A ISAC base stations in Century Park serve as "low-altitude navigation towers" for drones, providing route planning and navigation assistance. Integrated sensing sets electronic no-fly zones and monitors real-time conditions, ensuring flexible aerial security control.

➢ **A Harmonious Future**

Smart city parks blend nature with modern technology, offering visitors a harmonious and enriching experience. The magic of technology in these parks ushers in a new era of connectivity and enjoyment.

GTI Breakthroughs and Achievements in 2023-2024 (1/2)

13 Newly Released White Papers and Technical Reports

5G

GTI XR Network Technology White Paper_v1.0
This white paper aims to explore the key capabilities of 5G networks, devices and services to satisfy the large bandwidth and low latency requirements simultaneously for XR to achieve a new immersive service experience.

GTI Technical Specification of 5G RedCap Lightweight Universal Modules_v1.0
This white paper focuses on the medium speed Internet of Things field, with the R17 stage RedCap technology as the core, define the technical requirements of 5G lightweight universal module from aspects such as communication capability, hardware packaging, electrical interface, etc.

GTI 5G Femto Technical Requirements White Paper_v1.2
This white paper delves into the development process of Femto cell, provides an overview of the industry's current state, analyzes the demand for key application scenarios, outlines the technical requirements for 5G Femto, and showcases typical demonstration applications.

GTI 5G Metrics and Test Methods Towards XR White Paper_v1.0.0
This white paper aims to promote the formation of service quality evaluation metrics for XR service in the industry, define metrics of 5G performance, form a statistical method for the metrics of 5G performance, and explore requirements of equipment capability and test methods for typical XR service.

GTI 5G Radio Network Intelligence Technical Requirements White Paper_v1.2
The white paper aims to make suggestions, form consensus on the basic capabilities that radio network elements should have, and drive the industry from the aspects of demand scenarios, technical capability requirements, and architecture evolution.

GTI 5G New Calling Open Ecosystem White Paper
This white paper introduces the 5G New Calling open ecosystem from multiple dimensions such as the value chain, technical framework, practice cases, standardization progress, and industrial cooperation, etc. It will help the industry partners to jointly promote the construction of the 5G New Calling open ecosystem.

GTI White Paper on IMT System Operating in 6GHz Band Coexistence with Incumbents
This white paper will investigate the coexistence of IMT and existing 6GHz band services, such as FSS/FS, by exploring the models, parameters and technologies based on ITU-R agreement, and timely carry out the relevant simulation to verify the theoretical analysis.

GTI Breakthroughs and Achievements in 2023-2024 (2/2)

5G ENS

GTI Operator Secure Access Service Edge White Paper_v1.0.4
This white paper mainly introduces the background, definitions and requirements of SASE, analyzes the benefits and advantages of establishing a SASE framework for operators, details the key capabilities, functional frameworks, and deployment architectures required by operators and discusses the technical challenges, ecological cooperation and scenario expansion of SASE framework.

GTI Requirements and Typical Industry Applications of Passive IoT White Paper
This white paper explores the extensive applications and potential benefits of IoT technology in various sectors, and delves into how Passive IoT technology enhances efficiency, reduces operational costs, and bolsters management and monitoring capabilities in these domains, facilitating their transition to more intelligent and efficient systems.

GTI 5G Native Deterministic Technology for New Industrialization White Paper_v1.0
This white paper presents the deterministic demand for key application scenarios based on the comprehensive analysis of 5G enabled digital factory, proposes the core concept of "Native supply of deterministic capability, extreme service for deterministic performance global guarantee for deterministic reliability", as well as summarizes and forecasts the future evolution of 5G native deterministic technology and industry development.

GTI Passive IoT Typical Scenarios White Paper
This white paper focuses on the typical application scenarios of passive IoT, categorizes the scenarios based on the characteristics and capability requirements of the full life cycle of the marking object, and elaborates the business pain points of each scenario with the applicability and value of passive IoT in the corresponding scenario.

Joint Report

Unleashing New Value with New 5G Technology
This report dives into five megatrends in evolution from 5G to 6G, covers nine representative new technologies, and analyzes, in detail, 5G's new value as a new driving force for the in-depth and intelligent development of economy and society. It's hoped to build consensus on 5G technology innovation and value creation, develop and strengthen the 5G industry, and stimulate 5G-enabled economic and social transformation.

GTI Report - 5G-A x AI: New Era, New Opportunities, New Value
This report focuses on the business models and value expansions of 5G in the three markets: Individual, Household, and Industrial. The report then analyzes new opportunities and values brought by the collaborative development between 5G-A and AI. GTI aims to gather the industry's consensus regarding how to realize the full potential of 5G A^2, and create a much broader value space for the entire industry.

Scan QR Code to download whitepapers & reports

GTI Organization

Provide Strategic Guidance

Leaders Committee (LC)
Chairmen/CEOs from operators
(China Mobile, Bharti Airtel, SoftBank, Vodafone, KT)

Co-chairman:
Craig Ehrlich

Co-chairman:
Gao Tongqing

Steering Committee (SC)
Executives from **13** operators

Operation and Management

Partner Forum Leadership Committee (PFLC)
Executives from **23** industry partners

Support Operation and Management

GTI Secretariat

GTI Press Office

GTI Certified

Technical Work Architecture

5G Technology and Product

5G Enterprise Network Solutions (5G ENS)

5G Innovative Applications & Monetization

GTI 5G-A×AI Development Program

More details about the technical work, please **Click Here**.

GTI Key Moments
—Look Back to Our Historical Story (1/2)

GTI

2011
Kick-off of GTI by China Mobile, SoftBank, Vodafone and other operators

2012
Release of world's first TDD/FDD Multimode chips

2013
Release of world's first MMMB smart phone

2014
World's first TD-LTE VoLTE phone call was made

2015
Release of 5-Mode Low Cost Device Solutions

2015
Release of Native RCS Devices

2016
Launch of **GTI 2.0** by China Mobile, Bharti Airtel, KT, SoftBank and Vodafone to promote 5G development and cross-industry innovation

2016
Release of HPUE on Band 41 to promote Massive MIMO commercialization and improve systematic performance

2018
Release of GTI 5G S-Module Industrial Cooperation Plan to promote wide application of 5G devices and expand the scale of application

2018
Joint release of *5G in China-the Enterprise Story* by China Mobile, GTI and GSMA

GTI Key Moments
—Look Back to Our Historical Story (2/2)

GTI

2019
Debut of 5G 2.6GHz End-to-end Products to accelerate maturity of 2.6GHz industry chain and promote 5G commercial process

2020
Release of *Supportive Policies for a Sustainable Mobile Industry in the 5G Era* with GSMA to promote sustainable mobile industry

Release of GTI 5G Global Device Initiative to promote maturity of multi-mode, multi-band and multi-form devices

2021
Unveil the joint "2.3GHz Band Industry Statement" to promote efficient use of TDD 2.3GHz spectrum and accelerate commercial launch by global operators

2023
GTI 3.0 was launched to promote continued global cooperation, accelerate 5G-A tech and products, foster integration of DICT, and empower 5G monetization to create greater value

2023
Release of *Unleashing New Value with New 5G Technology*, to develop and strengthen 5G industry, and stimulate 5G-enabled economic and social transformation

2024
Release of *GTI Report – 5G-A ╳ AI: New Era, New Opportunities, New Value* to promote full potential of 5G A^2, and create a much broader value space for the entire industry

Launch of GTI *5G-A ╳ AI Development Program* to promote integration of 5G and AI in technology, business, ecology, and commerce, and two-way empowerment
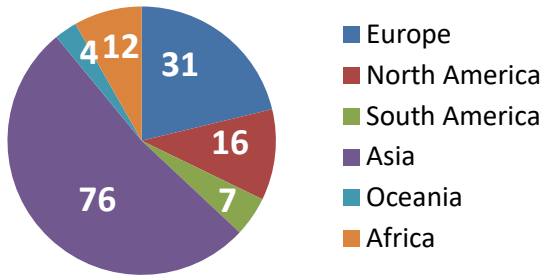
2024
GTI and GSMA signed cooperation agreement on 5G-A╳AI to jointly explore potential collaboration opportunities and drive innovative integration in 5G-A and AI.
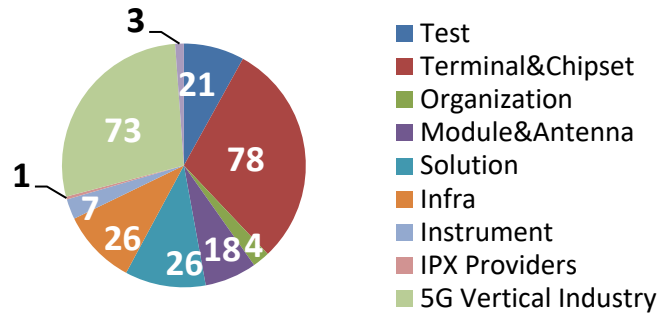
GTI Members Updates and 5G-A×AI Development Program

146 Operators and 261 Industry Partners Joined GTI by July 2024

146 Operators

31 Europe
16 North America
7 South America
76 Asia
4 Oceania
12 Africa

261 Industry Partners

21 Test
78 Terminal&Chipset
4 Organization
18 Module&Antenna
26 Solution
26 Infra
7 Instrument
1 IPX Providers
73 5G Vertical Industry
3

International Cooperation

GSMA · ITU · 3GPP · NGMN · GCF · 5GAA Automotive Association · 5G ACIA · KHRONOS GROUP · ……

GTI 5G-A×AI Development Program

Task 1: Build Open Labs

- Provide industry, academia and research parties with **basic environment, equipment facilities, industry application scenarios and other resources** for 5G-AxAI integration innovation

- **Jointly research, develop, and test** new technologies and solutions (5G Advanced, 5G-AxAI integration)

- **Carry out the R&D, testing and demonstration** of 5G-AxAI new service scenarios in key areas including personal life, industry, energy, transportation, and urban governance, etc.

Task 2: Build an Open Collaborative Innovation Community

Establish an open technology platform and knowledge sharing culture. It is an online platform for:

- **"Communication and Sharing"** includes sharing of new 5G-AxAI white papers, product solutions, key enabling capabilities, successful stories of 5G-AxAI integrated innovations, other resources and best practices. It also calls for engagement, participation and provides opportunities for collaboration within the community

- **"Supply and Demand Matching"** mainly involves: the demand side putting forward problems and solicit corresponding technical solutions from community members

Task 3: Explore Innovative Use Cases

- Focus on the high-value needs in digital intelligence application scenarios (including personal life, industry, energy, transportation, urban governance)

- **Explore 100 5G-AxAI integration use cases**, and condense them into replicable business model templates, so as to provide references for value creation and monetization

If you are interested in this program, please Click Here to register.

Welcome to Join GTI Membership

*GTI is an international platform for industry cooperation. It was kicked off in 2011 by China Mobile, SoftBank, Vodafone and other operators. After years of joint efforts, GTI has developed **146** operator members and **261** industry partners. In 2016, GTI 2.0 was officially launched, aiming to further promote 4G evolution, 5G development and cross-industry innovation. In 2023, GTI 3.0 was launched to promote continued global cooperation, accelerate 5G-A tech and products, foster integration of DICT, and empower 5G monetization to create greater value.*

How to Join GTI

Join as GTI Operators (with TDD Spectrum)

1. **Click Here** to download and fill out the **Application Form**, then return it to GTI Secretariat: **admin@gtigroup.org**;

2. Sign the **GTI Letter of Intent (LOI)** documents and mail the signed hard copies to GTI Secretariat;

3. Once the participation process finishes, a GTI website account and associated password will be assigned to the new participant.

Join as GTI Observers (without TDD Spectrum)

1. **Click Here** and fill out the **Application Form**, then return it to GTI Secretariat: **admin@gtigroup.org**;

2. Sign the **Declaration Form** and mail the hard copy to GTI;

3. Once the participation process finishes, a GTI website account and associated password will be assigned to the new participant.

Join as GTI Partners (GTI Partner Forum)

1. **Click Here** and fill out the **Application Form**, then return it to GTI Secretariat: **admin@gtigroup.org**; GTI Secretariat and Working Group Chairmen will review;

2. Sign the **Declaration Form** and return the signed hard copy to GTI Secretariat;

3. Once the participation process finishes, a GTI website account and associated password will be assigned to the new participant.

CONTACT GTI:

If you have any questions, comments, and suggestions regarding 5G/5G-A or general enquiries regarding GTI, please contact: **admin@gtigroup.org**

Welcome to Join GTI 3.0

Continued Global Cooperation on 5G-ADV[i] Toward Greater Commercial Success

GTI White Papers and Reports **GTI Website** **GTI WeChat** **GTI WhatsApp Group**

GTIgroup2011   **GTI Summit**   **admin@gtigroup.org**