



CASE STUDY

China Unicom shares 5G expertise with Asia enterprises

Published by

**MOBILE
WORLD
LIVE** 

In partnership with



China Unicom Global has set the standard for transferring its 5G technological capabilities to vertical industries across Southeast Asia, deploying advanced systems at an electrical appliance plant in Thailand.

The company has deployed 10,560 private 5G networks to various enterprises, up from 4,818 a year earlier.

It is one of the world's largest operators, claiming 271 million 5G subscribers and 540 million IoT connections in China. Its global arm has deployed fully connected smart factories for numerous manufacturing facilities on the mainland, with a focus enabling end-to-end automated production, from signal assurance to intelligent operations.

China Unicom also developed a large language model for the medical sector to aid patients in seeking medical treatment more conveniently and flexibly, which featured at the ITU's AI for Good Summit in Geneva in May.



Taking private 5G to Southeast Asia

China-based Midea Group contracted China Unicom Global to upgrade the network of its industrial park in Thailand, deploying a private 5G network to support a range of automated processes, with the aim of increasing efficiency and boosting production capacity.

The facility in Chonburi province is Midea's first offshore 5G-powered smart factory, with a capacity of 4 million units a year, and also is the first fully-connected plant in

Southeast Asia using the next-generation mobile technology. The company is a leading manufacturer of electrical appliances, with 150,000 employees in China and around the world, 200 subsidiaries and more than 60 overseas branches.

China Unicom Global partnered with Thai mobile operator AIS and network equipment vendor Huawei to deploy a private network to support operations across the 160,000-square-metre plant.

Due to the remote location of the factory and the large number of workers, the facility experienced poor network coverage as well as regular congestion problems, impacting productivity. In addition, the lack of automated quality control equipment on site required time-consuming manual calculations and labour-intensive processes, leading to a high product rework rate.



Overcoming barriers

To overcome unstable network conditions and add automated equipment, Midea elected to install a private 5G network designed and deployed by China Unicom Global. Enhanced capabilities were added to cover automated inspection, data collection and analysis, robotic arms and guided vehicles.

Vincent Cai, GM of Midea Refrigeration Equipment Thailand, said: “The presence of 5G network technology is paramount to support the operation of

intelligent equipment, such as sensors and actuators, ensuring high-precision production.”

Cai added the network upgrade, which took three months to implement, significantly increased productivity, while worker numbers didn’t have to be reduced.

The Chinese operator’s private 5G network enabled each production phase to be seamlessly connected, improving the operating efficiency by 15 per cent to 20 per cent, while reducing the rework rate by 75 per cent.

An air conditioner comes off the assembly line every 10 seconds, with an average daily production capacity of 28,000 units.

Automated inspection

Supported by China Unicom's 5G network, the AI-powered inspection system is designed to identify shapes of parts and locate their position during assembly using laser sensors, sending an alert when a defective part is found. AI detection drastically reduced the number of reworked items from 4,000 to 1,000 and minimised operational errors. The system also improved production efficiency, resulting in a 4 per cent increase in first-time yield.

The combination of massive connections and high reliability offered by 5G networks enables real-time monitoring and analysis of production gear. Continuous data collection and analysis optimise equipment utilisation, mitigate downtime and improve overall equipment capacity, Cai stated.

Tapping the power of advanced 5G technology, Lin Binbin, Head of Products & Solutions at China Unicom Global, noted automated guided vehicles (AGVs) have undergone a paradigm shift, moving beyond preset routes and physical markers for navigation. Dynamic path planning and real-time environmental data analysis now enhance flexibility

and adaptability, significantly improving operational efficiency in complex factory environments.

Workers also can remotely control robotic arms via 5G smartphones, eliminating the need for hazardous manual intervention in many production processes, enhancing worker safety and also optimising production material flow, resulting in higher product quality.

Equipped with 5G technology, operating facilities can simulate and test the status of outdoor compressors, ensuring efficient and reliable operations. With zero data loss and low-latency capabilities, 5G backhaul guarantees seamless data transmission for critical applications.

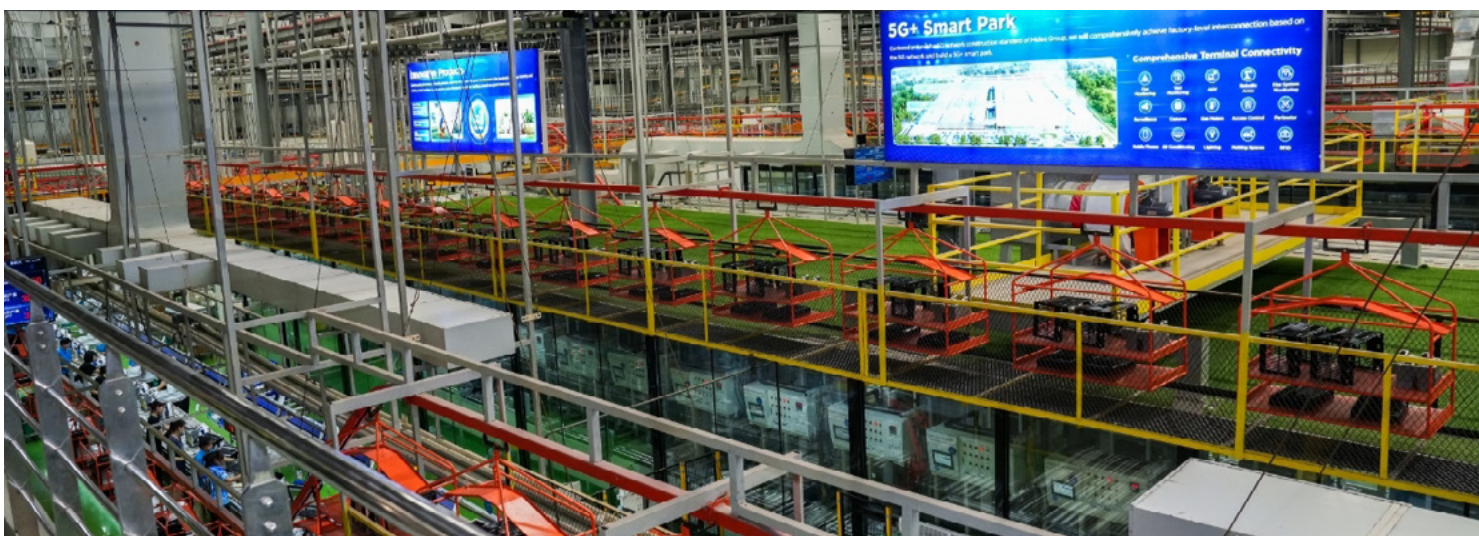
Huawei supplied two ATN gateways, two sets of user plane function (UPF) components, (which are key elements in 5G core architecture), as well as two firewalls. A Huawei representative said the success of the 5G fully connected factory project showcases its expertise in designing, planning and constructing 5G mobile networks. The implementation covered core network programme

determination, equipment installation, data configuration and deployment. In addition, the project involved "rigorous testing of the 5G private network and testing the AGV and data collection 5G application for seamless integration".

The fully-connected 5G factory deployment won the Best Mobile Technology Breakthrough in Asia at the GSMA's Asia Mobile Awards 2024.

The partnership with China Unicom and Huawei allowed AIS to learn from the companies' experience in applying 5G technology, preparing it to assist more Thai companies with digital transformation in the future, Lin highlighted.

The establishment of the first 5G fully connected factory in Southeast Asia by China Unicom Global marks a significant milestone in Thailand's journey towards intelligent transformation and Industry 4.0. "By combining China Unicom's experience and Thailand's ecological resources, the companies can explore the application of 5G in the country," said Eunice Tse, General Manager of China Unicom Thailand.





Using AI to reduce disparities

China Unicom was invited to the ITU's AI for Good Global Summit on 29 May to showcase its AI-powered healthcare service based on its Yuanjing large-language model which is specifically trained for the medical industry.

The model is designed to help patients and doctors quickly understand medical conditions and assist in health assessment as well as provide clinical research data retrieval and processing services for doctors, enabling them to better engage in medical and scientific research work.

The service was submitted for review by the ITU's AI for Good-Innovate for Impact initiative, which aims to harness the power of AI for sustainable development. The goal is to accelerate progress on the United Nations' Sustainable Development Goals (SDGs) by connecting AI innovators with opportunities to scale and fund promising AI projects.

The programme is supported by China's Ministry of Industry and Information Technology.

China Unicom's participation at the summit in Geneva "underscores its innovative AI capabilities and commitment to advancing intelligent development". Its exhibit demonstrated three Yuanjing apps: language, hearing and vision.

The Yuanjing model was developed by China Unicom to automate diagnostic processes with the aim to reduce reliance on traditional medical equipment and human resources, decrease the medical



resource imbalance caused by regional differences and promote health globally.

The user-friendly interface allows both healthcare professionals and patients to easily interact with it, making healthcare more accessible and reducing health disparities.

The operator explained it is committed to ensuring the model empowers various applications in the medical and healthcare sector, focused on pre-diagnosis information collection and pre-consultation before seeking medical treatment.

The intelligence service also targets medical research by building clinical research data governance capabilities; provides data retrieval, processing and intelligent indicator

development services; and delivers research output assistance to support clinical research scenarios for doctors.

China Unicom said the model can interpret health reports, covering pre-examination, examination and post-examination data, to provide higher-quality and flexible AI medical services for more intelligent healthcare.

"The model has set an example for improving global health and ensuring everyone can access high-quality medical care," the company stated, adding in the future it aims to "further iterate our product capabilities based on market and medical patient needs, and promote them to more hospitals".



China Unicom Global Limited is a specialized subsidiary of China Unicom dedicated to international businesses. It has established over 35 subsidiaries worldwide, invested in over 60 international submarine cable systems, 12 international transmission maintenance centers (ITMC), 22 international terrestrial cable border stations, and 360 Points-of-Presence (Product PoPs), providing services across the globe.

Leveraging extensive network resources, expert-level system integration capabilities, and expertise in digital technology innovation, China Unicom Global is a trusted partner in providing comprehensive global digital information services, including global connectivity, cloud computing, data center solutions, ICT, IoT, global voice, data roaming services, and more.

Find out more at www.cuguplus.com

Mobile World Live is the premier destination for news, insight and intelligence for the global mobile industry. Armed with a dedicated team of experienced reporters from around the world, we are the industry's most trusted media outlet for breaking news, special features, investigative reporting, and expert analysis of today's biggest stories.

We are firmly committed to delivering accurate, quality journalism to our readers through news articles, video broadcasts, live and digital events, and more. Our engaged audience of mobile, tech and telecom professionals, including C-suite executives, business decision makers and influencers depend on the unrivalled content and analysis Mobile World Live provides to make informed business decisions every day.

Since 2016, Mobile World Live has also had a team of in-house media and marketing experts who work directly with our brand partners to produce bespoke content and deliver it to our audience in strategic yet innovative ways. Our portfolio of custom work - including whitepapers, webinars, live studio interviews, case studies, industry surveys and more - leverage the same level of industry knowledge and perspective that propels our newsroom.

Mobile World Live is published by, but editorially independent from, the GSMA, producing Show Daily publications for all GSMA events and Mobile World Live TV - the award-winning broadcast service of Mobile World Congress and home to GSMA event keynote presentations.

Find out more at www.mobileworldlive.com

Disclaimer: The views and opinions expressed in this report are those of the authors and do not necessarily reflect the official policy or position of the GSMA or its subsidiaries.

© 2024