

China's industrial internet drives smart manufacturing, zero-carbon transition

Shenyang's 2025 Conference spotlights AI, smart factories, and zero-carbon parks shaping sustainable manufacturing.

SHENYANG, LIAONING, CHINA, September 16, 2025 / EINPresswire.com/ -- With automation rates reaching as high as 95 percent, the BMW Brilliance Automotive Shenyang production base demonstrates how artificial intelligence (AI) is [reshaping modern manufacturing](#). Approximately 200 AI applications have been deployed across the base, [empowering the entire value chain](#) from shop-floor operations and back-end management to supply chain optimization and quality control.

"Aligned with BMW Group's global quality benchmarks, Shenyang production base operates a rigorously validated quality management system that exceeds industry norms," said Michele Melchiorre, senior vice president of technology and manufacturing at BMW Brilliance Automotive Ltd.

As the digital wave sweeps across the globe, powerful information technologies such as AI, big data and the Internet of things are finding deeper integration with China's vast manufacturing sector. From smart workshops and "lights-out factories" to zero-



Smart Robotics Driving Industrial Transformation Toward Zero-Carbon Manufacturing. Photo provided by Industrial Internet Conference



Human-Robot Collaboration Showcasing the Future of Green Smart Factories. Photo provided by Industrial Internet Conference

carbon industrial parks, digital, automated and green factories are defining the new face of Chinese manufacturing.

From Sept. 5 to 8, the 2025 Global Industrial Internet Conference was held in Shenyang under the theme "Digitalization for a New Era, Intelligent Manufacturing for New Quality," focusing on accelerating the integration of AI and the industrial internet, and providing solutions for the next wave of global industrialization.



Intelligent Automation Empowering Low-Carbon Industrial Innovation. Photo provided by Industrial Internet Conference

SMART FACTORIES

In Anshan City, Liaoning, Ansteel's cold-rolling plant operates seamlessly as a lights-out factory, with intelligent transport robots and unmanned crane systems keeping production on track.

Inside the factory, overhead intelligent cranes glide smoothly, unmanned transport vehicles move in an orderly fashion, and multi-axis robotic arms precisely carry out tasks such as labeling and applying adhesive tape. Steel coils, seemingly with eyes of their own, move autonomously along the production line.

smart manufacturing(<https://english.news.cn/20250806/5627e27b64714b4abebe4b1c000e9941/c.html>)

Digital empowerment(<http://www.news.cn/photo/20250906/83187a6b80d54fd0bed84c5f419fed4c/c.html>)

industrial transformation(<http://www.news.cn/20250905/7d4de74b593d4d91b76648567bcad2c7/c.html>)

"Previously, a shift worker had to walk nearly 30,000 steps a day. Now only seven operators are needed for two entire production lines," said Zheng Hao, manager of the sub-factory for coating and plating.

Such changes are unfolding nationwide. According to the Ministry of Industry and Information Technology (MIIT), China has built over 30,000 basic-level smart factories and more than 230 top-tier ones, covering 31 provincial-level regions and spanning over 80 percent of industrial categories.

Lights-out factories and smart workshops are emerging across the country, with centralized digital control centers becoming the standard in advanced enterprises. Production floors are equipped with a wide array of monitoring cameras and sensors, reflecting how China's manufacturing is embracing digitalization and intelligent upgrades, increasingly powered by the industrial internet.

The industrial internet embeds digital solutions across many scenarios to improve manufacturing efficiency and reduce operating costs. At the conference, industry professionals widely shared and examined digital and intelligent manufacturing cases from across the country.

At a factory of China's home appliance manufacturer Midea in southwest China's Chongqing Municipality, supercomputing is used to set key parameters and design blueprints, cutting raw material waste and lowering operating costs by 15 percent. In Wuhan, capital of central China's Hubei Province, PC manufacturer IPASON runs flexible assembly lines capable of shipping customized orders within 24 hours. Dongfang Electric Corporation has developed the nation's first large model specialized for major energy equipment, offering precise digital operation and maintenance advice.

Through digital and internet empowerment, China's traditional manufacturing is gradually moving away from high-energy, labor-intensive models toward a more data-driven and internet-coordinated approach, said Pan Hong, executive dean of the Institute of Digital Economy at Liaoning University, noting that [digital transformation](#) has become a strategic choice and a key lever for China to maintain its industrial advantage across the globe.

ZERO-CARBON DRIVE

Zero-carbon industrial parks, combined with digital manufacturing, are drawing increasing attention at the conference. They are expected to help accelerate the shift toward zero-carbon, green and low-carbon operations in Chinese manufacturing, minimizing the environmental impact of industrial production.

At Michelin's Shenyang tire plant, a self-developed energy management system enables real-time monitoring and reporting of energy use. Since 2021, the plant has achieved 100 percent renewable electricity through solar generation and green power purchases, cutting carbon emissions by an estimated 800,000 tonnes over 20 years, according to Li Yanbing, general manager of Michelin Shenyang Tire Co., Ltd.

China has so far nurtured nearly 500 national-level green industrial parks, with industrial waste utilization rates exceeding 95 percent, MIIT data showed.

"Industrial internet is building an interconnected system covering people, machines, resources, carbon and pollutants," said Lyu Xuedu, executive deputy director of the Carbon Neutrality Committee of the China Energy Conservation Association. "This new model helps break long-standing barriers between environmental and carbon management, enabling factories and parks to achieve efficiency and sustainability simultaneously."

China's push toward zero-carbon industrial parks is also accelerating. In December 2024, the concept was highlighted at the Central Economic Work Conference. On July 1, 2025, the National Development and Reform Commission, together with two other government departments, issued a document to encourage localities to build zero-carbon industrial parks that can reduce carbon dioxide emissions to "near zero" through advanced planning, design, technology and management, and eventually achieve net-zero emissions.

In Suzhou Industrial Park, east China's Jiangsu Province, an AI-powered energy management platform predicts electricity loads based on production schedules and historical data, ensuring maximum use of green power. In 2024, the park sourced over 90 percent of its energy from clean sources, with both energy and carbon intensity at nearly one-third of the national average.

"China is stepping up its pursuit of low-carbon manufacturing, advancing from green parks to zero-carbon parks," said Chen Wenhao, senior R&D expert at China Mobile Internet of Things Co., Ltd. "The industrial internet will open vast application scenarios in carbon markets and product footprint management, providing innovative and actionable Chinese solutions for the global transition in manufacturing." Enditem

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