

SIEMENS

Siemens in China

Siemens AG is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for more than 170 years. The company is active around the globe, focusing on the areas of intelligent infrastructure for buildings and distributed energy systems, and automation and digitalization in the process and manufacturing industries. Through the separately managed companies Siemens Energy, the global energy business of Siemens, and Siemens Mobility, a leading supplier of smart mobility solutions for rail and road transport, Siemens is shaping the energy systems of today and tomorrow as well as the world market for passenger and freight services. Due to its majority stakes in the publicly listed companies Siemens Healthineers AG and Siemens Gamesa Renewable Energy (as part of Siemens Energy), Siemens is also a world-leading supplier of medical technology and digital healthcare services as well as environmentally friendly solutions for onshore and offshore wind power generation.

The history of Siemens in China dates back to 1872, when the company delivered the first pointer telegraph to China. The company manufactured the first steam generator and built the country's first tram line by the end of the 19th century. In 1985, Siemens entered a cooperation agreement with the Chinese government, becoming the first foreign company to participate in such a comprehensive cooperation scheme. For nearly 150 years, Siemens has pioneered cooperation with the country with its solutions, technologies and products.

In the past over 70 years, Siemens witnessed China's tremendous changes, especially since the country embarked on reform and opening-up, and has also

made great contributions to the prosperity of China's economy and society. China is now the second largest overseas market of Siemens.

Siemens has become an integral part of the Chinese economy and society. Offering a wide array of innovation and digitalization solutions in cooperation with local partners, Siemens is committed to the sustainable development of China. Siemens lives up to "being responsible, excellent and innovative" as its company values and "Ingenuity for life" as brand claim. On the way to "Vision 2020+", the company dedicates itself to long-term value creation. The purpose is to serve the society and make real what matters.

Innovation for China's development

Siemens develops the most promising products and solutions in China, for China and also for the world. The company focuses on digital innovations and combines the global R&D systems and extensive network of innovation centers with local business needs. Siemens develops innovations to fulfill the needs of local customers and breathe fresh life into transformation and upgrade of China's industries.

Meanwhile, Siemens spares no effort to build an open innovation ecosystem in China. The company partners with local governments, leading enterprises, medium, small and micro-sized enterprises and start-ups, as well as universities and scientific research institutions to jointly develop future-oriented innovations and achieve win-win for all parties.

By fiscal 2019, Siemens had 21 R&D hubs, more than 5,000 R&D and engineering staff, as well as over 13,200 active patents and patent applications in China. Siemens' top-notch innovators work in world-class innovation labs in Beijing, Shanghai, Suzhou, Nanjing, Wuhan, Wuxi, Qingdao, Chengdu, etc. to contribute to the high-quality and sustainable development of China's economy.

Officially opened in 2006, Siemens Corporate Technology China (CT China) is the company's largest research branch outside Germany. Research scientists at CT China

work on cutting-edge technologies of electrification, automation and digitalization with a strong boost to the businesses. Meanwhile, CT China is leading the company's global research in autonomous robotics with a focus on the R&D of new mechatronics systems, human-robot collaboration and application of artificial intelligence in robotic controllers.

In September 2016, Siemens Corporate Technology China, Suzhou opened with a focus on the R&D and applications of big data, industrial Internet of Things (IoT), connected city solutions, industrial cybersecurity and autonomous robotics. It was Siemens' first R&D hub focused on digital technologies in China.

In May 2017, Siemens announced the commercial release of its Cyber Security Operation Center service as part of its Cyber Defense Center (CDC) in Suzhou. Siemens is the first international industrial company in China to have organization, infrastructure and portfolios certified with local security law and regulations.

In 2019 in China, the company opened its first AI Lab outside Germany. With the lab as a platform, Siemens is able to establish a global innovation network that covers Europe, North America and Asia. Leveraging advanced technologies and best practices, Siemens provides Chinese customers with leading and practicable industrial AI solutions.

Nowadays, IoT has become one of the major enablers of digital transformation for enterprises. Siemens IoT Services was founded on April 1, 2019. With a comprehensive approach and domain knowhow to develop strategies, and to create, plan and deliver end-to-end solutions along the entire IoT value chain, Siemens IoT Services provides customized digital paths for Chinese customers.

In November 2019, Suzhou Financial Leasing Co., Ltd. (Suzhou Financial Leasing) officially launched its intelligent post-leasing platform. The platform, empowered by Siemens' business platform, data layer and IoT services, interconnects core business systems of Suzhou Financial Leasing and realizes integrated monitoring and

management of leased assets ranging from vehicles and power stations to large-scale equipment. This was the first time that Siemens' data layer technology was deployed to the financial leasing industry.

Comprehensive portfolio for long-lasting partnership

Rooted in China, Siemens supports the regional development with innovative technologies to drive regional prosperity. As a leader of cutting-edge technologies, Siemens is the strategic partner for the Guangdong-Hong Kong-Macao Greater Bay Area. Siemens supports development of the Area with five focuses - enabling clean energy, developing digital manufacturing, building smart city cluster, driving innovations and nurturing talents.

In June 2019, Siemens' first Smart Campus Demonstration Showroom in the Greater Bay Area officially opened in Hengqin, Zhuhai City. It supports the implementation of innovation-driven digital development strategy in the area.

In addition, by fiscal 2019, Siemens worked with over 100 Chinese companies such as CEEC, POWERCHINA, CNPC, Sinopec Group, CNBM and CIMC Raffles to explore opportunities in over 100 countries and regions across six continents.

In China, as the manufacturing industry experiences a significant transformation from "Made in China" to "Innovated in China", Siemens helps manufacturers enhance environmental efficiency, flexibility and cybersecurity, improve product quality and shorten the time to market of new products. Siemens is also thinking industry further by integrating forward-looking innovative technologies into its Digital Enterprise solutions to unlock infinite possibilities of efficiency and business model.

In July 2017, based on their existing cooperation framework, Siemens and NDRC signed an MoU that specified cooperative activities in areas of innovation and in the application of digital technologies. Siemens continues to offer Digital Enterprise solutions to support the upgrade and transformation of China's industrial sector.

In June 2017 in Beijing, Siemens opened its first Digitalization Experience Center (DEC) in the Asia-Pacific Region. The Center comprehensively exhibits the company's leading Digital Enterprise concept for "Industrie 4.0". By fiscal 2019, Siemens had built four DECs in Beijing, Shanghai, Suzhou and Chengdu respectively.

In April 2019, MindSphere, Siemens' cloud-based open IoT operating system, was deployed on Alibaba Cloud, and MindSphere ecosystem started to take shape. By fiscal 2019, Siemens had established six MindSphere Application Centers in Greater China.

In the iron and steel industry, Siemens entered into strategic partnership with HBIS Group in digitalization areas including MindSphere, digital factory, intelligent equipment and IoT. The two companies are jointly building the first unmanned material yard in China's metallurgical industry.

In the automotive industry, Siemens' Digital Enterprise solutions and SICAR standard specially for automotive industry have supported BAIC Beijing Electric Vehicle Co., Ltd. to build the group's first mass production base for new energy vehicles in Qingdao. The production base is also a benchmark digital factory.

In the pharmaceutical industry, Siemens reached strategic partnership with Jinyu Biotechnology Co., Ltd., and jointly built the first digital factory toward "Industries 4.0" in China's animal vaccine industry.

By fiscal 2019, Siemens supported hundreds of Chinese industrial enterprises in dozens of sectors to implement digital transformation and upgrade, setting benchmarks for digitalization of China's industries.

As the world's only company covering the entire energy value chain, Siemens helps customers navigate the world's most pressing energy challenges, making a difference for the future of energy.

In the oil and gas industry, as a leading rotating equipment supplier, Siemens provides key products and solutions for extraction, transportation and processing of oil and gas. For example, Siemens supplied leading gas turbine power-generating units for production platforms of Dongfang 13-2 Gas Field and Penglai 19-3 Oil Field of China National Offshore Oil Corporation Ltd. to supply electricity for the fields and help stabilize oil and gas productions.

In addition, Siemens provided an advanced Power Package System including DP3 Closed Ring Power Solution for “BLUEWHALE I”, a semisubmersible drilling rig with the greatest operating water depth and drilling depth, to ensure its energy-efficient, stable and safe operation. In May 2017, “BLUEWHALE I” succeeded in trial drilling of combustible ice.

To help the oil and gas industry deal with the opportunities and challenges of digitalization, the company also provides corresponding solutions. For example, Siemens offers “Topsides 4.0” and “Pipelines 4.0” as secure and digital solutions that cover the whole industrial lifecycle to increase efficiency and reduce operation cost.

In the field of power generation, China Huadian Corporation (China Huadian) is building China’s largest combined cycle power generation project in Zengcheng, Guangzhou. Siemens provided two sets of equipment including two SGT5 - 8000H gas turbines, two steam turbines and four generators. In March 2019, the first unit was successfully lifted on the foundation. This project was another breakthrough for Siemens after winning its first H-class gas turbine order in Greater China to provide a power block to a new combined cycle unit in Black Point Power Station in Hong Kong.

Siemens also actively applies digital technologies in the power industry. For example, Siemens and China Resources Power Holdings Co., Ltd. (CR Power) worked together to build a Centralized Supervision and Analysis Specialist System based on MindSphere. The system has integrated Siemens’ technologies of digital power plant and artificial intelligence, and rich experiences of CR Power. It can help power plants reduce coal consumption and improve equipment reliability. By October 2019, CSASS

covered 19 power-generating units in eight power plants of CR Power in Jiangsu Province.

In power generation services, Siemens continues to enhance localization in China, aiming to help local customers maximize operation efficiency and reduce risks. In June 2018, Siemens Power Generation Customer Service Center - Yixing was inaugurated. As an important part of Siemens' power generation global service network, the service center provides one-stop service solutions to Chinese customers.

In the field of power transmission, together with local partners, Siemens delivered the world's first $\pm 1,100$ kV high-voltage direct-current (HVDC) transformers to the world's first $\pm 1,100$ kV UHVDC transmission line (Changji-Guquan). The transmission line, boasting the world's highest direct current voltage grade and the largest transmission capacity, is 3,324 km long with a transmission capacity of 12 gigawatts.

Joining hands with customers and partners, Siemens creates environments that care. Smart infrastructures from Siemens intelligently connect energy systems, buildings and industries to adapt and evolve the way people live and work. Siemens works together with customers and partners to create an ecosystem that intuitively responds to the needs of people and helps customers to better use resources. It helps customers to thrive, communities to progress and supports sustainable development.

Beijing Daxing International Airport came into operation in September 2019. Siemens provided smart infrastructure solutions, ensuring efficient and safe operation of the airport. Siemens' intelligent building technologies helped facilities including terminals stay energy-saving and safe. Meanwhile, Siemens' low and medium-voltage products guaranteed reliable energy supply of the airport.

Siemens also equipped Shanghai Tower with advanced energy management and intelligent building systems, including power transmission and distribution, energy automation, fire alarm control and intelligent lighting system, enabling intelligent management of the building and making it safer and more reliable.

Meanwhile, Siemens provides complete distributed energy system solutions to customers in areas of utilities, public services and industrial verticals. Siemens is also exploring the rapidly growing data center market with partners. Siemens provided Alibaba Zhangbei Data Center with energy management and building solutions, ensuring the efficient, safe and stable operation of the data center.

In the area of building technologies, Siemens provided intelligent building technologies for the Passive House Technology Center at Qingdao Sino-German Ecopark. The Center has created a perfect living environment for people with nearly zero energy consumption. It can save operation cost of RMB 500,000 and reduce carbon emissions of 664 tons annually.

As a long-term, reliable and close partner of China's transportation industry, Siemens is dedicated to providing the most efficient, safe and environmentally friendly transportation products and solutions to the Chinese market.

Siemens provided the tailor-made Zhuhai Integrated Traffic Information and Service Platform for Zhuhai. This was the company's very first Traffic Management System turkey project in China.

In the field of urban rail transport, by November 2019, 40 metro lines in 16 Chinese cities used Siemens' advanced metro signaling systems, boasting a total length of over 1,400 kilometers.

In December 2017, Siemens won the first Fully Automated Operation (FAO) project in China to provide core components and key technology of traction system and electric control solution for FAO trains in Shanghai Metro Line 18 Phase I project. This was an important breakthrough and a milestone for Siemens in China's FAO market.

In addition, Siemens also focuses on innovation in the mobility area. In addition, Siemens also focuses on innovation in the mobility area. In December 2017, Siemens

signed a framework agreement with the municipality of Jin'an District in Fuzhou to establish the first Siemens Mass Transit Signaling Innovation R&D Center in China.

Utilizing its cutting-edge technology and strong capital, Siemens also provides worldwide customers with professional and reliable financial solutions. In China, the company drives business success with customized leasing solutions for Siemens equipment and third-party products in sectors such as machine tools, construction machinery, transportation and logistics, electronics, packaging, food and beverage, plastic injection and glass deep-processing, etc.

From 2005 to the end of fiscal 2019, Siemens Finance and Leasing Ltd. financed more than 2,000 public and private hospitals, helped over 1,000 enterprises upgrade equipment, and established strong relationships with hundreds of manufacturers and dealers.

Value creation for society

Actively fulfilling corporate social responsibility and focusing on creating values for the society is a core mission of Siemens. As a good corporate citizen, the company has made constant efforts to contribute to the public welfare in China, focusing on creating values for the society through its portfolio, innovations, local operations, people development and activities in corporate social responsibility.

In addition to monetary donations, Siemens provides relevant products and solutions to contribute knowledge, experience and technological assistance to entities in need. Siemens employees also actively participate in voluntary activities jointly organized by Siemens and non-profit organizations.

Siemens Employee Volunteer Association (SEVA) was launched in 2012 as a platform of volunteering and cooperation for the employees, the company and the society. By fiscal 2019, SEVA organized 416 volunteering events in 17 cities across China, benefitting hundreds of thousands of people.

Over the years, the company has been actively engaged in a variety of corporate social responsibility activities with a focus on three areas: Access to Technology, Access to Education and Sustaining Communities.

Starting in 2018, Siemens joined hands with partners to upgrade and retrofit power distribution systems of Yangpo Village in Guizhou to ensure electrical safety of the traditional village, creating value for the society in a responsible way.

The company is committed to aligning business activities with the interest of future generations. Siemens aims to become the world's first major industrial company to achieve a net-zero carbon footprint by 2030 and plans to cut its CO₂ emissions by half by as early as 2020. To achieve these goals, Siemens invested some €100 million over three years from fiscal 2016 to reduce energy footprint of its production facilities and buildings.

In 2016, Siemens renewed the MoU with the Ministry of Education in a bid to boost cultivation of innovation-oriented talents. By fiscal 2019, Siemens collaborated with 391 Chinese universities and vocational schools in building of labs, teachers training, engineering textbooks and Siemens scholarships. The company sponsored “Siemens Cup” China Intelligent Manufacturing Challenge for 13 years and cultivated nearly 50,000 innovative engineering talents. Siemens also advocates the talent development concept “New Engineer” with partners to cultivate compound talents with multi-specialty and interdisciplinary in the era of digitalization. By fiscal 2019, Siemens China ranked No.1 among Industrial Engineering companies in the Most Attractive Employers in China ranking of Universum for six consecutive years.

In the past over 10 years, Siemens has cooperated with more than 90 universities and research institutes on over 770 R&D projects in China. The Center of Knowledge Interchange (CKI) program represents Siemens' top-level and long-term strategic collaboration with global universities in R&D and talent cultivation. In China, Siemens has built up CKI strategic ties with Tsinghua University to further promote the cooperation on scientific and technical exchanges and talent development. In October

2017, Siemens extended the Master Research and Development Agreement with Tsinghua University for another five years, leading the CKI collaboration into its third phase in China.

In 2017, Siemens entered into partnership with Tsinghua University to jointly set up Tsinghua University – Siemens Joint Research Center for Advanced Robotics in Beijing. This synergy between global experts was the basis for Siemens to build a new innovation community of robotics automation and control technologies, as well as for identifying and developing top talents in the robotics field.

In June 2019, Siemens signed a strategic cooperation framework agreement with Shenzhen Technology University (SZTU) to deepen their partnership in cultivating talents in intelligent manufacturing, helping SZTU become an open, innovative and international applied university.

Every year, Siemens holds more than 30 technology lectures and career lectures at universities countrywide. The company also holds Siemens Open Day events and establishes Siemens Student Circle at many universities. By fiscal 2019, the company established Siemens Student Circle in 10 universities across the country. Meanwhile, the company provides full-time job opportunities for the graduates every year. A large number of graduates from top universities in China have joined Siemens trainee programs including Siemens Sales Trainee Program “Sales 100”, Siemens R&D Trainee Program “R&D 100”, Siemens Engineer Trainee Program “Engineer 30”, Siemens Graduate Program SGP, etc. In addition, Siemens has gradually established the Campus-Hub campus learning center and Talent Training Base in various universities across the country to cultivate intelligent manufacturing talents.

As for primary education, Siemens I-Green Education Program, launched in 2009, targets migrant children in primary schools in China to raise their awareness of environmental protection and help them better integrate into city life. By fiscal 2019, the program was rolled out in 11 schools of migrant children in 10 cities, including Beijing, Shanghai, Wuhan, Guangzhou, Kashgar, Shenzhen, Chongqing, Nanjing, Xi'an and

Chengdu, benefitting over 24,000 migrant children. Nearly 2,800 Siemens employee volunteers devoted over 29,000 hours to this program.

Siemens commits itself to sustainable development of the society by taking initiatives including organizing various activities for environmental protection, supporting development of NGOs, providing social assistance to disadvantaged groups and providing immediate technological and humanitarian assistance in case of natural disasters.

In February 2020, Siemens China together with Siemens Healthineers China donated Siemens Healthineers medical equipment worth RMB 15 million in support of China's efforts to combat against the COVID-19 outbreak. Over 6,200 employees from Siemens entities in China also jointly pledged a donation totaling RMB 2.2 million in support of China's fight. The accumulated donation by the company and employees was used to purchase much-needed Siemens Healthineers medical equipment, and the donation was conducted through cooperation with Wuhan Youth Development Foundation.

In 2007, Siemens joined hands with Nanjing University, Consulate General of the Federal Germany in Shanghai and other partners to establish the John Rabe and International Safety Zone Memorial Hall, as well as the Development Fund for John Rabe International Research and Exchange Center for Peace and Reconciliation. In 2016, Siemens renewed the sponsoring agreement to make further contributions to the fund for the next five years to continue promoting John Rabe's humanitarian and volunteering spirit.

Siemens' long-term commitment to corporate social responsibility is widely recognized by the Chinese society. In January 2020, Siemens received the "Charity Driver Award 2019" at the 9th China Charity Festival. The award recognized Siemens' dedication to corporate social responsibility and efforts of actively promoting social charity undertakings in the country. This was the fifth time in a row that Siemens was awarded at the China Charity Festival. In May 2019, Siemens was honored "More Than A Market Award 2019" by the German Chamber of Commerce in China.

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