

SIEMENS

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Siemens R&D activities in China

Siemens is one of the world's most innovative companies. The company aims to be a trendsetter in all its business sectors, and to shape its technologies with a clear focus on delivering tangible and valuable benefits for customers and stakeholders.

For Siemens, China becomes one of the most important R&D bases. Siemens will continuously increase investment to R&D capabilities here. The emphasis is locally designing and developing the right products and solutions for the Chinese market to meet local customer needs, and also using the advantages China offers to develop technologies in China for global application.

Industry Sector

Industry Automation & Drive Technologies (IA&DT) in 2008 announced the next big breakthrough in digital product development with synchronous technology, the PLM industry's first-ever history-free, feature-based modeling technology. This technology will fundamentally change the way that manufacturers design products and enable them to accelerate their innovation process, ultimately driving increases in top line revenue. The technology is the first-ever design solution that simultaneously synchronizes geometry and rules through a new decision-making inference engine.

Meanwhile, IA&DT also launched in 2008 an innovative product - SINAMICS V10 inverter. It is the first inverter developed by IA&DT's operating company Siemens Numerical Control Ltd., Nanjing and is tailored for China market. With a modern and innovative design, the inverter is featured with robustness, flexibility, energy-saving and high efficiency, applicable widely to pumps and fans, heating, ventilation and air-conditioning, textile, conveyor systems and machine manufacturing industries.

Siemens Mobility (I MO) is the reliable and innovative partner of Chinese transportation and logistics industry. I MO locally developed MCU-6 traffic controller to address the specific requirements and meet the demands of emerging markets. Its main benefits are robustness and reliability, economy, scalability as well as easy upgrade options towards the complete Siemens portfolio of traffic control products. MCU-6 now has already received worldwide recognitions and been applied in more than 10 Chinese cities as well as East Europe and South America. Siemens Signaling Co. Ltd., Xi'an (SSCX), the Division's joint venture, has dedicated in the technology import and local R&D since its foundation. SSCX introduced and made the adaption design of the Balise Intermittent Information Transmission System, which has been successfully applied in Qinshen line, providing helpful experience for the application of Euro Balise in Chinese railway lines. Currently, S 700 K-C electric point machine, S 21 Balise system, Az S 350 U axle counting system which are all introduced and adaptation-designed by SSCX are widely used in Chinese speed-up lines, dedicated passenger lines, high speed lines and metro lines.

Siemens **Building Technologies (BT)** provides total building solutions designed to achieve high productivity by ensuring safety and comfort in a secure environment and reducing maintenance costs during the life cycle of the building.

Beijing Siemens Cerberus Electronics Ltd. (BSCE) is the fire security and HVAC R&D and manufacturing center of Siemens Building Technologies Division in China. Besides China market, the worldwide Building Technologies business benefits from this R&D capabilities.

Siemens Circuit Protection System Ltd., Shanghai (SCPS) is a joint venture established by Siemens Limited China and Shanghai Power Transmission & Distribution Co., Ltd. SCPS produces circuit protection devices with outstanding performance. Its R&D organization focuses on competitive circuit protection products which perfectly fulfill customers' needs by smart design and reliable quality. Located at Shandong Zibo, Siemens Wiring Accessories Shandong Ltd. (SWAS) is Siemens' global production center of wiring accessory products and components. While targeting China local market, SWAS also exports to other Asian countries such

as India, Thailand, and Philippines and will serve Eastern Europe and Brazil in the near future. With the establishment of SWAS, Siemens now covers a complete industrial value chain of the switch and sockets business from R&D, production, logistics to sales. It equips SWAS with stronger competitiveness to respond fast in the dynamic market and satisfy local customers by shorter lead-time with global high quality.

OSRAM, a wholly owned Siemens subsidiary, is a leading lighting solutions provider with strong R&D capabilities serving the increasing demand for innovative products. OSRAM Design Center China (DCC) was established in March 2002 in Foshan, Guangdong province and tailored to meet local market needs, so called S.M.A.R.T. products. Now OSRAM has 4 R&D centers in China for Lamps and Processes, Electronic, LED System, Luminaries and Equipment. In close cooperation with OSRAM's R&D Groups in other countries, OSRAM China also contributes to the development of solutions for the worldwide markets.

In 2007, OSRAM established a lighting laboratory in Tongji University, Shanghai, and in 2008 a cooperation agreement was made with SIVA, Fudan University, Shanghai, to facilitate the lighting know-how transfer and to support the development of lighting solutions for Expo 2010.

Energy Sector

Effectively managing and optimizing power plants is one of the most useful solutions for China to achieve its green goal of energy saving. Siemens Power Plant Automation Ltd. (SPPA), located in Jiangsu, is the only supplier of Siemens's power automation control system and optimization management system in China. With the rapid development of China's power industry and higher demands on green power in China, in order to provide safe, economical and optimized operational products and services with overall solutions to power plants, SPPA devotes to promoting the concept of modern digital power plants in China. In the field of power plant automation, Siemens power automation control systems such as SPPA-T3000, SPPA-R3000 and SPPA-E3000, which are equipped with the most advanced software and hardware, are able to offer various automation control strategies and

optimization control software for supercritical and ultra-supercritical units, environmental protecting units (air cooling, desulphurization and deNox cycle units) and combined parameter operation, so as to meet the requirements of the integration of management and control for modern power plants, for example, SPPA-T3000 for Shanghai Waigaoqiao Power Generation Co. Ltd. Phase III (2X1000MW). Moreover, SPPA has already achieved abundant experience in automation control system for nuclear power plants to generate power with cleaner energy, for example, Jiangsu Tianwan Nuclear Power Generation Co. Ltd. Phase I (2X1000MW). Meanwhile, automation digital control system has also been applied to the integration gasification combined cycle (IGCC) power plants in recent years. To create the excellent and flexible digital platform for the modern management in power plants, SPPA fosters research and development in optimization management software for power plants, such as SPPA-D3000 power plant advanced intelligent diagnosis system and SPPA-M3000 power plant production management system.

Established in 2004, Siemens Power Automation Ltd. (SPA) is the only branch company of Siemens Energy Automation outside of Germany with both production and R&D setup in its value chain. As an integrated part of the Siemens Energy Automation (EA) global research and development network, SPA RD creates local products and solutions tailored to Chinese customer needs, and at the same time, works on EA international RD projects. Although still a young team, it passed CMMI (Capability Maturity Model Integration) level 3.5 in 2008 and has become one of the leading teams inside Siemens' worldwide RD organizations in that aspect. SPA RD has around 100 people currently and is targeted to increase the team close to 200 by 2010. With innovative technology and excellent R&D processes, the team develops high quality power protection and automation products to guarantee the business of our customers to be successful from the very beginning.

Healthcare Sector

Siemens Healthcare is the World's first fully integrated diagnostic company with some 3,000 employees in six operating companies, producing CT, MR, X-ray, ultrasound, hearing instruments and in-vitro diagnostic equipment to meet demand from China, Asia and all over the world. In 2007, it relocated its national headquarters

to the Shanghai International Medical Zone (SIMZ). The integration of R&D, manufacturing, marketing, sales, logistics and services under one roof further strengthens customer focus and understanding of the requirements of a rapidly growing and increasingly demanding market in Asia.

Siemens Shanghai Medical Equipment Co., Ltd. (SSME) set up its R&D center as the only overseas CT R&D and manufacturing center outside of Germany. The 6 and 16 slice new SOMATOM Emotion CT in 2007 for the world wide market provide excellence performance in both routine examinations and clinical research. In 2005, the center also successfully developed a dual-slice entry-level CT system - SOMATOM Spirit. Meanwhile, SSME CT software team has teamed up with Healthcare R&D centers in Germany to develop advanced CT system.

Besides CT, SSME also established X-ray department and began to produce X-ray products. SSME is the largest development and production base for X-ray system besides German headquarter. Focusing on the requirements of basic medical equipment market, SSME developed serial products with the principle of S.M.A.R.T (Simple, Maintenance friendly, Affordable, Reliable and Timely to market). The representational product AXIOM Iconos R100, a remote-controlled Fluoroscopy system has been launched into market in Oct. 2008.

Siemens Healthcare launched its R&D and manufacturing base for X-ray tube housing assembly at Siemens X-Ray Vacuum Technology Ltd. in Wuxi. With the total investment of RMB 45 million, this R&D and manufacturing base is the only such facility outside of Germany.

In 2005, MR Center of Excellence for Asia was opened in Siemens Mindit Magnetic Resonance Ltd. (SMMR) as the largest Magnetic Resonance Imaging (MRI) R&D and manufacturing base outside of Germany. Relying on its rich clinical experience and advanced technology and with the joint efforts of all the R&D forces of SMMR, Germany and England, MAGNETOM ESSENZA with Tim technology was launched in November 2007. It received over 200 orders across the globe in less than one year after its launch.

Cross Sector

As a trusted software development partner for all Siemens business areas in China, Siemens Program and System Engineering (Nanjing) Co. Ltd., (SPSE) develops embedded software that are in alignment with Siemens products, systems, services and solutions. With its comprehensive technology management system comprising of advanced software development methods, processes and tools as well as quality management know-how and project expertise, SPSE ensures that all developed software meets the customer's requirements with highest quality standards. In addition, the company has partnered with many local universities for recruiting and technological research activities. By March 2009, more than 150 qualified engineers in SPSE are in active engagement with software development projects in areas of Automotive Industry, Enterprise Communications, Medical Solutions, Industrial Solutions, Business Consulting, SAP-projects, Power Management, Aviation, e-Commerce, Logistics, Airport Information System, etc.

BSH

BSH Home Appliances (China) Co., Ltd. (BSH) established its local R&D activities in July 2003. Located in Nanjing, Jiangsu Province, the unit concentrates on the joint development of advanced drive systems for home appliances. In 2004, BSH announced plans to invest 99 million US dollars to establish a small home-appliances park in the Nanjing Economic Technology and Development Zone which consists of a R&D center together with manufacturing facilities.

Corporate Technology

Corporate Technology of Siemens Ltd., China (SLC CT) was established in 1999 and started significant expansion in 2004 with the mission to develop unique innovations for Siemens business in China and worldwide.

With diverse needs and customers who are willing to try new things, China is an ideal place to develop world-class innovations. To best use these strengths, the innovation strategy of SLC CT is to lead in high-end with Mainstream Innovation, and change

the games in emerging market with S.M.A.R.T. (Simple, Maintenance friendly, Affordable, Reliable, Timely to market) innovation, which is a new way to do an old thing, and good enough for a group of initial customers in emerging market with the potential to move up into mainstream and change the games. SLC CT is also working on Cost Innovation which can sustainably reduce the cost without sacrificing the value to the customers. The research fields of SLC CT cover industry, energy, and healthcare to address the main challenges China is facing.

In 2005, Technology-to-Business China was established in Shanghai with the outside-in model to work with external innovation sources to systematically bring their innovations into commercial usage. CT Corporate Intellectual Property and Functions (CT I) bundles innovation related strategic functions on a corporate level. CT I provides professional services and governance in the areas of Intellectual Property, including Patents and Trademarks, Standardization & Regulation, and Environmental Affairs & Technical Safety.

Now, more than 200 top-notch innovators are working in world-class SLC CT innovation labs in Beijing and Shanghai. As a responsible citizen in China's innovation society, we also work closely with Chinese universities and research institutes to create a win-win situation to contribute to China's "Indigenous Innovation".

Siemens also actively reaches out to China's leading universities and has established numerous co-operations for mutual benefits. To date Siemens has set-up comprehensive co-operations with 16 top universities in China to promote research & development, foster knowledge sharing and make contributions to education. In 2008 Siemens signed Center of Knowledge Interchange (CKI) Framework Agreements with both Tsinghua and Tongji University. With each of the 2 universities, the agreement established a 5 year R&D cooperation program covering a wide range of technology areas of mutual interest. The CKI relationship is the highest level of R&D cooperation with university for Siemens worldwide. Each university also sets up a CKI Office in campus to facilitate the cooperation programs between the university and Siemens.

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Siemens in China

Siemens is one of the most well-known, liked and respected corporate citizens in China. Marked by the delivery of China's first pointer telegraph in 1872, it is among the earliest international companies to pioneer co-operation with China. Over more than a hundred years, Siemens has stood for technical achievements, innovation, quality, reliability and internationality. Presently, Siemens maintains more than 90 operating companies and 61 regional offices in China, representing all business sectors of Siemens worldwide – Industry, Energy and Healthcare. These offices, together with the Regional and Provincial managers, are the backbone of Siemens' regional strategy and ensure that the company is close to its customers to be able to respond quickly and efficiently to their needs. With more than 43,000 highly qualified local staff, Siemens has become one of the largest employers amongst foreign invested enterprises in China and an integral part of the Chinese economy. Today, by applying a wide array of environmental portfolio and innovative solutions in the cooperation with local partners, the company is committed to contributing to the sustainable development of the country. In Fiscal 2008, sales and new orders of Siemens China were RMB 57 billion and RMB 65.5 billion respectively.

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