

# Research and development

## Facts and figures Suzhou, 2017

### Key figures for research and development (R&D)

- In fiscal 2016, we invested €4.7 billion in R&D, compared with €4.5 billion in fiscal 2015. We will increase our R&D investments to about €5 billion in fiscal year 2017.
- Since fiscal 2014, we've boosted our annual R&D spending by about 25 percent, corresponding to approximately €1 billion.
- Our R&D intensity, defined as the ratio of R&D expenses and R&D revenue, was 5.9 percent, the same as it was in fiscal 2015.
- As of September 30, 2016, Siemens had received about 59,800 patents related to its continuing operations. At the end of fiscal 2015, the figure totaled around 56,200.
- Siemens had an average of 33,000 R&D employees in fiscal year 2016.

### Facts and figures: Digitalization

- Our digital platforms and services business generated revenue of more than €1 billion and our industry software business grew to €3.3 billion in fiscal 2016. On a comparable basis, this is equivalent to an overall increase of 12 percent and thus considerably exceeded average market growth of eight percent a year.
- Siemens is focusing on digitalization: one of our goals is to process more than 80 percent of our transactions with suppliers electronically by 2020.
- Digitalization is also making us more efficient. We are, for example, making increasing use of our own software range and expanding our "digital enterprise." This will enable us to reduce the time to market for our company's products by 30 percent to 50 percent.

### Facts and figures: Innovation in China

- By fiscal 2016, Siemens had over 4,500 R&D researchers and engineers, 20 R&D hubs and more than 11,000 active patents and patent applications in China.
- By fiscal 2016, Siemens had established R&D branches in cities including Beijing, Shanghai, Suzhou, Nanjing, Wuhan, Wuxi, Qingdao and Tianjin.
- In March 2016, Siemens set up the Qingdao Innovation Center, its first innovation center for intelligent manufacturing outside Germany. The research areas include intelligent manufacturing, robotics, modern logistics, big data, information security and smart city.
- Established in September 2016, Siemens Corporate Technology Suzhou focuses on research into big data, the web of systems, connected mobility, cyber security solutions and industrial robotics.
- In January 2017, Siemens opened Wuhan Industry Maker Space to explore innovation models and the industrial ecosystem of intelligent manufacturing. Wuhan Industry Maker Space is part of Siemens' Wuhan Innovation Center, which was established in 2013 and focuses on R&D in areas such as Industrial IoT, data integration and application support technology, intelligent manufacturing and smart water.
- In May 2017, Siemens China's Cyber Defense Center began operations in Suzhou. The center monitors customers' key factories and plants as well as Siemens' infrastructure, including industrial control systems for cyber threats, warns owners in the event of security incidents and coordinates proactive countermeasures.
- In June 2017, Siemens' first Digitalization Experience Center in the Asia-Pacific Region opened in Beijing. The center demonstrates how the digital twin, used in real-time operation, and the open cloud-based IoT operating system MindSphere improve productivity and efficiency.
- In August 2017, Siemens announced the establishment of the Siemens Intelligent Manufacturing (Chengdu) Innovation Center and the Siemens China Software Development (Chengdu) Center. The two Centers have been set up to provide state-of-the-art, integrated digital enterprise solutions for manufacturers in the region. Siemens China Software Development (Chengdu) Center is the company's first R&D center in China focused on MindSphere. It will be an important part of Siemens' global innovation network and have a key role within the MindSphere ecosystem.