Reflected glory

China and Germany The world's leading exporter is increasingly competing – on quality as well as price – in areas long seen as the preserve of its biggest European rival, writes **Daniel Schäfer**

China Shapes the World

Q-Cells of Germany was the world market leader in solar panels when Anton Milner, chief executive, was asked about the threat of competition from Asia. His response was dismissive. German customers would never buy a Chinese product that had to last 20 years, he maintained.

A few years on, China's Suntech Power has outsmarted and outsold the German company, and Mr Milner is no longer in office. Q-Cells' stock market value has collapsed from €11bn at the end of 2007 to about €390m. Besides Suntech, Chinese rivals such as Yingli Green Energy and JA Solar are also flooding Germany with cheap but reliable panels, while large parts of the domestic industry are in the doldrums.

Q-Cells provides a cautionary tale for corporate Germany. Just as the country's machine tool makers, car companies and electrical engineering groups have brought their plants back to full speed following the sharp economic decline of 2009, the next big challenge appears on the horizon.

China – long renowned for producing cheap clothes, toys and electrical goods – overtook Germany to become the world's largest exporter in 2009. Last year it registered a trade surplus with Germany of almost €17bn. Today, it is on the verge of a direct assault on Europe's economic powerhouse in its core industrial areas.

"I am expecting a massive attack from China in Europe in the next few years – particularly in the machinery sector," says Franz Fehrenbach, chief executive of Bosch, the world's largest maker of car parts and Germany's largest privately held industrial group by sales. "The Chinese will improve their quality and technology, but they will at the same time be extremely price-attractive."

In areas that include not only solar panels but also wind energy, telecommunications networks, power transmission and high-speed trains, Chinese companies are already on a par with their western counterparts, often after "re-innovating" technology sucked out of joint ventures. In other areas, such as construction machinery, machine tools, cars and electrical engineering, companies from Sany in construction equipment to Shanghai Electric in power systems are gearing up to compete.

As the race between the world's largest exporting nations gathers pace, what steps is German industry taking to fend off the greatest threat it has faced since the rise of corporate Japan in the 1960s and 1970s?

At first glance, it looks as though Europe's largest economy has lost out in its core sector. In mechanical engineering – a sector employing 909,000, or one in 20 German industrial workers, and made up mostly of small and medium-sized "Mittelstand" enterprises – China has taken the lead. At 25 per cent, its world market share in 2009 was almost twice that of Germany.

"I have to say I find it admirable with how much speed they are catching up, and how clever they are in combining western technology with their own and producing it at low cost levels," says Peter Leibinger, deputy head and part-owner of Trumpf, the world's largest laser-cutting machine maker.

Until now, their success has been driven by consumers in their vast home market and exports to fellow emerging markets. However Thomas Lindner, president of VDMA, the German engineering association, says the competition will soon be felt in Europe. "In higher-volume markets, such as machine tools, the situation will become a lot more critical for us than in the niche markets," he says.

While this poses a threat to some, many executives are adamant that their companies will hold their own. The key is the characteristic that has driven their economy for more than a century: the engineering-based approach and inventive spirit that spawned Mittelstand specialists in niche markets and premium technology products, from Porsche sports cars to Trumpf cutting machines.

Take Heidelberger Druckmaschinen, world market leader in printing presses. It recently produced its 1,000th press at a site near Shanghai, where it is assembling standard machines of similar quality to those sold in Europe but with fewer features and priced more competitively.

Bernhard Schreier, chief executive, says the group is even winning market share in China from local rivals who are unable – and unwilling – to catch up. "This is a niche market with low volume and high entry barriers," he says. With its huge research and development costs, he adds, it would neither yield the profits nor confer the prestige of a move into strategic areas such as solar power, cars or high-speed trains.

Like Heidelberger's presses, German engine-maker Tognum's products for ships, trains, and the oil and gas industry are regarded as premium. When KiwiRail, a New Zealand train operator, became the first developed country company to order Chinese locomotives, it insisted that the engines were supplied by Tognum. "The Chinese don't have service and maintenance networks outside their home country, so this is where we come in," a Tognum executive says.

But local production, and pursuit of the Chinese market, have downsides – such as the practice of re-innovation. "What China lacks right now is not money; it is technology. So if you can give technology to China this is the best way to capture this market," says Mao Zhenhua, director of the institute of economic research at Beijing's Renmin University.

Germany is not only Europe's largest trading partner with China, it is also its largest technology exporter. But managers are increasingly outspoken about forced technology transfers, as well as pressure to use local suppliers and provide state-controlled design institutes with detailed information on projects. Martin Brudermüller, head of the Asia-Pacific region at BASF, the world's largest chemicals maker by sales, says the group always takes its best technology to China. But he adds that "compulsory technology transfer is something we are strongly lobbying against".

While some German companies avoid taking cutting-edge technology with them when they move production to Asia, others simply avoid disclosing it in full to Chinese partners. "It takes two to tango," says Axel Heitmann, chief executive of Lanxess, the speciality chemicals maker. "We have defined key technologies which we are protecting by not lifting the lid on them."

Long-standing relations with China have proved valuable for Germans. Bosch, for example, has been doing business there for more than 100 years, and today employs almost 30,000 people at 46 sites. This history has created high levels of trust between the conglomerate and local partners.

Plus, Bosch's managers say, if you can sell your products there, you can sell them anywhere. "The biggest market in China is going to emerge in the midprice segment. Our task is to become steadily more competitive and to play a large role in this segment locally. If we achieve this, then we don't have to be afraid about the competitiveness in the rest of the world," says the company's Mr Fehrenbach.

Indeed Siemens, Europe's largest engineering company, has developed a strategy to sell lower-priced, simplified versions of its high-end products pitched at the Chinese market elsewhere. The Somatom Spirit, its entry-level CT scanner, was developed and produced in China; today more than 80 per cent are sold abroad – increasingly in the west.

While large operations such as Siemens and Bosch have long run big research and development centres in China, some of the smaller Mittelstand companies cannot afford even to produce there. Mr Fehrenbach says companies that are not exposed to the tough rivalry in China's midprice segment will struggle to compete with the Chinese in western markets as well. He suggests smaller companies set up joint ventures or other forms of partnership in China.

Some fear that failure to confront the problem one way or another will eventually put small operators out of business. "German companies are in danger of being pushed ever higher on to the technological ladder, until one day the market niche will be too small to survive," says Jürgen Heraeus, chairman of the eponymous precious metal trading group.

As China goes on the offensive, the threat grows more acute. Its companies are already considering the establishment of plants and research and development centres in Europe, poaching German engineers and trying to snap up Mittelstand companies and coveted brands. "We will start with sales and marketing next year and we plan to go into all major European markets," says Daniel He, Sany's European head. Sany is setting up a plant for concrete pumps and an R&D centre close to Cologne, for which it hired engineers from the nearby Toyota Formula 1 race team that recently shut up shop.

The number of investments in Germany by China, which last year overtook the Netherlands as the largest importer to Germany, shot up from seven in 2007 to 45 in 2009, according to Germany Trade and Invest, a government business promotion group.

Some investors start with small projects that help to them understand local culture. Fosun, China's biggest private conglomerate by sales, invested about €10m in restaurants and tea houses two years ago. Today the steel, pharmaceuticals, property, financial and tourism group plans to spend $2bn on Mittelstand technology companies. "Fosun will be one of the Chinese pioneers in investing in Europe," Guo Guangchang, chairman, recently told the Financial Times.

His words presage how the battle between the world's largest export nations will play out. Chinese companies will transfer, buy and develop technology and brands, and enter western markets. German industrialists will try to outsmart them by maintaining their technological edge and expanding in China and other emerging markets.

With Chinese companies competing on both price and technology, "Siemens and other western industrial companies will lose market share in the years to come", says James Stettler, capital goods analyst at Italy's Unicredit.

At Bosch, Mr Fehrenbach says: "The only valid conclusion for us is to do even more to remain at the technological forefront. Our main task is to stay ahead."

Shining example: workers inspect a photovoltaic panel at Yingli Green Energy, one of the Chinese makers to end Germany's leadership in solar technology Getty

'German companies risk being pushed ever higher on the technology ladder, until one day the niche will be too small'

Called to a count

Germany's rapid rise in the 19th century has made Otto von Bismarck the subject of intense interest in China. Scholars have sought to understand how Germany was able to industrialise so quickly and the diplomatic balancing act that this required.

More recently, popular writers have also focused on the role Bismarck's Germany played in the growth of the western financial system. As China becomes more assertive, some speculate that Beijing is shunning some of the Bismarckian balancing that has been a hallmark of its rise. One European analyst says China is going through "a Prussian moment".

Intellectual property perils

Hide and seek games counter 'absorb and digest'

In the cat-and-mouse game between hungry Chinese companies and technology-rich western corporations, both sides have developed increasingly sophisticated methods.

As part of China's strategy to move up the technology ladder, the country's intelligence agencies are actively involved in industrial espionage and the appropriation of trade secrets from multinationals, say intelligence officials in western countries.

German and other western intelligence agencies regularly issue warnings to executives travelling to China, advising them not to carry computers or mobile phones containing sensitive information. German executives based in China say the warnings are now an annual event and companies have introduced numerous precautions to protect their most sensitive technology.

For example, in 2005 when Chinese engineers were working with companies such as Siemens, Alstom and Bombardier to "absorb and digest" western high-speed rail technology, the suppliers played all sorts of "hide and seek" games, according to Chinese media. In one account from Chinese technicians, the foreign technology provider tried to convince them that rubber carriage joints on one train design were to stop passengers from falling off platforms. The Chinese engineers eventually worked out that the joints were actually to prevent train carriages from rolling sideways.

Other countries, notably Russia, are suspected of industrial espionage. But the concern over intellectual property infringement in China has been a perennial issue ever since economic reforms began three decades ago.

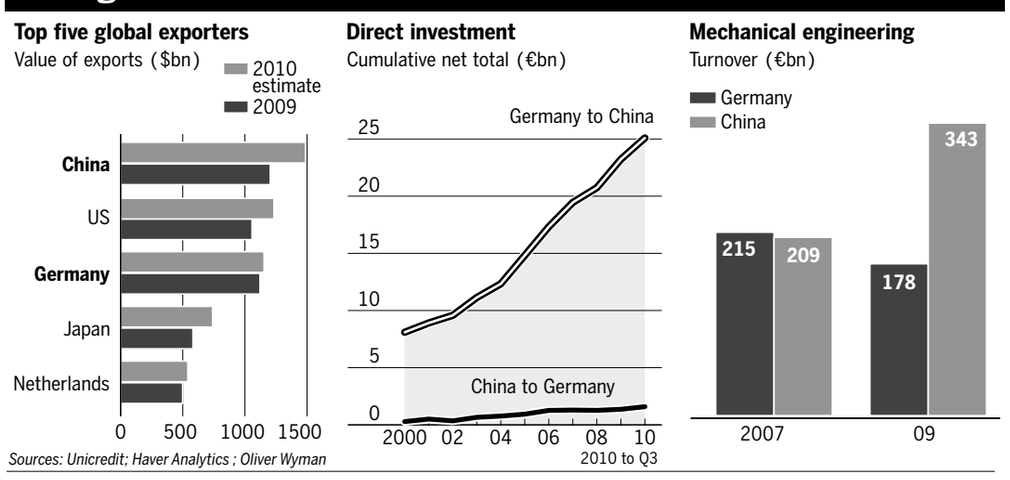
China-based European executives say German industry associations have previously advised German companies not to file any patents in China at all. "Their advice was based on the assumption that the moment you open up and describe your technology to the patent office, your idea is already gone," says one.

The executives say some companies that feel compelled to register patents in China have tried to protect their sensitive technology by deliberately including mistakes in the blueprints provided to regulatory authorities.

In spite of assurances from Beijing that the government is working to improve IP protection, international groups still complain about weak enforcement and arbitrary legal rulings. Meanwhile, Chinese companies are becoming more aggressive in protecting their interests. In 2009, France's Schneider Electric agreed to pay a Chinese company $23m to settle a patent lawsuit. Schneider had begun legal proceedings first, accusing the same company of stealing its electrical switch technology.

Jamil Anderlini

Taking the lead



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