

China

A new train set

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Heading for an upgrade

minister for railways, announced approval for two bold and long-planned high-speed rail lines. The larger, first mooted as long ago as 1994, is a 1,320km (820 mile) link between Shanghai and Beijing. With trains along it expected to reach top speeds of 350km an hour, it should cut the travel time between the mainland's two most important cities from 13 hours to less than five—although at an eye-watering expense of some 200 billion yuan (\$25 billion). The other project is a 175km connection between Shanghai and nearby Hangzhou, another big city in the booming Yangtze River Delta, that will allow speeds of up to 450km per hour and cost around 35 billion yuan.

These two lines are showpieces in a hugely ambitious official scheme to construct some 5,400km of high-speed rail track by the end of the decade, at a cost of more than 1 trillion yuan. This itself is but a part of China's plan to build and refurbish about 40,000km of its railways by 2010 in an effort to ease bottlenecks in the transport of everything from coal to soyabeans to people.

The Chinese government, however, has a second, equally important goal in mind: using the railways to display China's technological prowess in a way that it has failed to do—so far, at least—in building cars and aircraft. After two decades of deliberately importing foreign expertise in order to speed economic development, China is starting to place more emphasis on (and put more resources behind) homegrown

National pride is spurring development of China's railways

IN THE rush to modernise its transport infrastructure, China has built scores of glossy airports and an extensive road network along its eastern seaboard. Far less attention and money has been lavished on the country's antiquated and overburdened railways, which carry a high proportion of freight and passengers.

That is changing at last. On the fringes of the annual session of the National People's Congress, China's parliament, earlier this month, Liu Zhijun, the

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technology. A space flight by a Chinese astronaut in 2003, followed by a second manned space mission last October are the most visible signs of this new determination to catch up with western science and engineering in everything from software and consumer electronics to semiconductors and giant engineering projects. Following an official announcement this month that China planned to build its own jumbo jets, Mr Liu said that the new high-speed rail lines will not use any foreign technology.

That is a blow for the international engineering firms that have lobbied hard to sell their high-speed trains to China, including Japan's *shinkansen*, Alstom's French TGV and the maglev (magnetic levitation) train offered by Siemens and ThyssenKrupp of Germany. Siemens is behind the 30km maglev train service that has been running between Shanghai's Pudong airport and the city since 2002. And it may win some more work since the Shanghai-Hangzhou track will also be based on maglev technology, although principally one developed by Chinese engineers over the past few years. For the other foreign companies, prospects look less promising. The longer link to Beijing will be built with different, domestically-developed technology. And, as so often in China, it will be hard to establish whether foreigners' intellectual-property rights have been infringed along the way. As Mr Liu delicately put it to the Chinese media: "Our technology is a re-innovation on the basis of assimilating advanced technologies of foreign countries."

At a time when economic nationalism is rising around the world, China's unwillingness to remain in thrall to foreign technology is understandable. Whether it yet has the skills to develop and commercialise its own technology in a field as complex as modern train systems is another matter. None of an earlier generation of passenger jets, today's mainland cars and the Shanghai airport maglev are financial successes. Nor will either of the new high-speed links be ready for the 2008 Olympics. While China may be getting better at running trains, they are not yet running quite on time.

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