



Chinese trains

China, the pacesetter for change in inter-urban transport, is investing over \$1 trillion expanding its rail network to 120,000 km by 2020.

In a world where city-to-city, inter-urban transportation is increasingly seen as the major growth area for mobility, competition is rife between air, road and rail. Around the globe, cities, countries and regions have been talking about the benefits of speed, efficiency and convenience of the relative options and are variously making some serious commitments. While low-cost airlines continue to grow in many markets and car ownership is rising steadily, many governments are investing heavily in rail as the future of inter-urban transport. Having observed the advantages of high-speed rail travel in Europe and Japan, which have been largely ignored in the US, China is now considered by many to be the pacesetter for change.

A hundred and thirty years after the invention of the railway and its growth as the primary form of mass transport, the introduction of the first high-speed trains in Japan caught the imagination of many around the world. To help overcome capacity constraints on the existing networks, the Toyko to Osaka Tōkaidō Shinkansen line opened to coincide with the Olympics in 1964 and its 'bullet trains' ran at speeds of over 210 kilometres per hour (130 mph). Since then, newer, faster trains have cut around an hour and a half off the usual four-hour journey. Looking ahead, the Chūō Shinkansen maglev line planned for launch in 2025 will cut the time down to just one hour as trains travel at over 580 kilometres per hour (360 mph).

In Europe, high-speed train development is lagging behind. Supported primarily by the state railways of France and Germany, a network of TGV and ICE trains has been growing for the past forty-five years. Starting with the Paris-to-Lyon TGV, investment in high-speed trains across Europe has now extended the network beyond just France and Germany into Spain, Switzerland, Belgium, the Netherlands, Italy and, most recently, via the Eurostar to London. Regularly operating at speeds up to 350 km/h, travelling around Europe by train has for many become the ideal. Faster than the car and more comfortable than the plane, both business and leisure travellers have increasingly opted for the train as the preferred mode of city-to-city transport. Today, with over 2,400 km of high-speed track in Japan, 1,700 in France and 1,200 in each of Germany and Spain, the routes have been expanded, and clean, high-speed electric rail transportation continues to secure more investment from the varied governments.

By comparison, the impact of high-speed trains in the US has been minimal. Although the US freight trains are amongst the most efficient in the world, they typically run at only 50 mph and slow down passenger trains to around 80 mph. Today, with just one high-speed rail line in operation, there is only just over 700 km of track. The Acela Express, which was opened in 2000, runs between Washington, DC, and Boston via New York City and typically hits its target

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operational speed of 150 mph (240 km/h) on around 50% of journeys. Given the size of the country and the history of the American railroads, the US has to date gained surprisingly little advantage from high-speed rail. However, this situation is beginning to change. In 2009, the White House announced a strategic plan for high-speed rail and a budget stimulus of \$8 billion. This identifies ten high-speed rail corridors as potential recipients of federal funding. Those lines are in California, Pacific Northwest, South Central, Gulf Coast, Chicago Hub Network, Florida, Southeast, Keystone, Empire and Northern New England. Of these, only the California line has so far gained much traction, with the California High-Speed Rail Authority planning lines from San Francisco Bay and Sacramento to Los Angeles and Irvine via the Central Valley, as well as a line from Los Angeles to San Diego via the Inland Empire.

In contrast, China has seen high-speed trains as an opportunity not only to efficiently connect its cities but also to invest in an infrastructure for the 21st century and further drive economic growth. Having only opened its first TGV-like conventional high-speed route between Qinhuangdao and Shenyang in 2003, China already has a high-speed train network of over 6,500 km, the largest in the world by far. Average speeds of 312 km/h (194 mph) on the 922

km route from Wuhan to Guangzhou North make this currently the world's fastest commercial train service. As well as these conventional high-speed tracks, China also has the world's first commercial maglev route, from Shanghai airport to the city, which was opened in 2004. Trains on this line already run at over 430 km/h.

China has urbanised far more rapidly than India and has built new infrastructure ahead of demand. Recognising both the challenge and the benefit in increasing the speed of travel across the country, China is now investing over \$1 trillion in expanding its rail network to 120,000 km by 2020 – the second largest public works programme in history. Just as the US invested in the highways after the downturn in the 1930s and helped drive growth in automobiles, China has used the opportunity for well-targeted economic stimulus. Like Japan, South Korea, France, Spain and Germany before, China is reshaping its landscape around train services by investing in a mix of both very high-speed rail (350 km/h) and high-speed rail (125–150 km/h) that will be the global benchmark for mass transit systems. Cargo and passenger transport are being separated, double track artery lines are being electrified and transport hubs are being built in 196 cities. The decisions have already been made and the ambition will be implemented. China has become the new test bed for the world's high-speed train technologies and the country is moving forward fast. As a recent article in

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Time magazine put it: 'At a time when infrastructure in the US and Europe is ageing fast, China's railways may give it a competitive edge over the world's leading economies.'

In a world of rising demand for mobility, increasing city-to-city travel and escalating concerns about fossil fuel-based road and air transport, electric high-speed trains are seen as the best option. However, it is clear that many other nations are yet to take such bold steps forward and probably will not be able to deliver material change by 2020. Japan, France, Spain and Germany are continuing to invest and build

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upon existing networks but, while there is much talk of new high-speed lines, there is little action and their expansion is certainly not guaranteed. China is the clear pace-setter for change in inter-urban transport over the next decade. Will America follow?



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