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HD **Fast track to high-speed rail**

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With high-speed rail spreading to the US from Asia and Europe, the chances of Australia following suit are better than usually assumed.

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Success is likely to require a private-sector consortium to fund construction and recover a large slice of the cost by developing land along the route. This requires governments to reserve suitable land for development as well as a route.

The choice of technology is also important. Wheel-on-steel high-speed rail has been 50 years in Japan and 32 in Europe. It is **energy** efficient, well proven, having carried 6.5 **billion** passengers in Japan without injury.

But mechanical friction causes costly wear and tear above an operating speed of about 300km/h. The alternative is to use "magnetic levitation" to lift and propel trains at speeds of about 500km/h before air friction takes a high toll. Maglev should boost revenue by cutting travel time to two hours between Sydney and Melbourne, instead of three hours for wheel-on-steel, but it could have higher capital costs.

The joint chief executive of the Pottinger consulting **firm**, Nigel Lake, told a forum in Canberra on Monday that the private sector could deliver a high-speed rail network as a transformational piece of infrastructure. He said having worked on transactions worth hundreds of **billions** of dollars, he believes HSR could be running in 10 years. **China** is building a 7000-kilometre HSR link from Moscow to Beijing in five years at $A39 **million** a kilometre.

Capital cities are the major source of passengers in Australia. Sydney-Melbourne is the world's fourth-busiest domestic air corridor.

Lake said the cost of $40 **billion** to $50 **billion** for the 800 kilometres from Sydney to Melbourne is high. But operating costs are very low, so increases in passenger volumes have a big impact on profitability. He said based on good data, both volumes and ticket prices are likely to be higher than often assumed.

Others see the financial task as easier if a HSR consortium also develops land whose value will rise around new stations. Speakers at a recent Tokyo conference on the 50th anniversary of the commercial operation of the Shinkansen (or "bullet" trains) showed how HSR boosts economic growth and land values (as also occurs in Europe).Generated return

The Labor government's 2013 HSR study found a Melbourne-Sydney-Brisbane line would generate a 7.6 per cent economic internal rate of return. But it wrongly asserted there was no way to capture part of the increase in land values. One way is for the line's builder to also develop new suburbs at new stations, including a second one in spacious areas within capital cities.

Growth alongside regional cities would have the political and economic advantage of easing congestion in Sydney and Melbourne. Otherwise, these cities would contain more than half the projected 15.5 **million** increase in Australia's population by 2050.

The Prime Minister's Business Advisory Council chairman Maurice Newman, who attended the Tokyo conference, said some form of joint land/train development would probably be needed to make private-sector funding viable. Government funding should not be needed, although the Abbott government is putting $40 **billion** into road projects, many of which Infrastructure Australia has not passed. Assistant Infrastructure Minister Jamie Briggs told Monday's forum the government will limit itself to preserving an HSR corridor. But value capture requires more land set aside.

The French TGV wheel-on-steel trains have sold widely in Europe and done well in the Middle East and Korea. The biggest market is a **Chinese** version of the TGV. **China** has 18,500 kilometres of HSR track, and planned extensions into Russia and south-east Asia. Japan Rail Central developed the Shinkansen. After a slow start, its first **sale** was to Taiwan. It is on offer to Australia, the proposed Kuala Lumpur-Singapore line, two in India and the US market. California has started a 1287-kilometre track, but is still to choose the trains. A privately funded line from Houston to Dallas is likely to use the Shinkansen. A proposed Washington-New York-Boston link will use Japan's maglev.

Either **China**'s TGV or the Shinkansen should suit an Australian wheel-on-steel line. The Shinkansen is lighter, has better acceleration and requires smaller tunnels. Both rely on a mature technology but lack the advantages of the quicker journeys of maglev's speed and rapid acceleration.Maglev approved

The Japanese government approved maglev trains in October, each carrying 1000 passengers, for a new line between Tokyo, Nagoya and Osaka. JRC will fully fund the infrastructure and trains internally. Its latest net operating annual profit is over $A2.5 **billion**, mainly from its Shinkansen line from Tokyo to Osaka.

Opinion is split on the best technology for Australia. After riding JRC's maglev in Japan, Newman prefers it. But **China** could offer a cost-competitive version of the German Transrapid maglev it has operated on a short route from Shanghai airport for 10 years. Ultimately, a private consortium should say if wheel-on steel, maglev or neither, is viable.

The writer travelled to Japan as a guest of JRC.

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