High-speed rail and air trapped in destructive ‘dogfight’ myth

The failed model of mutual competition means the air and rail sectors will never reap the benefits of a fully integrated travel system, says a leading expert.

March 13, 2018 by **David W. Smith**

Advances in **high-speed rail** (HSR) have enlarged the distances over which trains can theoretically “compete” with planes, fuelling the media myth of a dogfight between the two sectors. Transport planners have encouraged the invention, clinging to the economic orthodoxy that competition is the best way of maximising efficiency. But a world-leading expert on transportation says the “competition” model is deeply flawed and damages both the air and rail industries. The reality is that when trains and planes neglect the benefits of cooperation, services suffer and passengers get a raw deal.

“Both sectors adopt a narrow focus on their own industries so that people in aviation think only about

runways and people in rail think only about railways," says Professor Moshe Givoni, Head of the Transport Research Unit at Tel-Aviv University. "Policy-makers treat the two sectors as separate entities and encourage this competitive spirit despite the fact they're part of the same transport system and air journeys start and end away from airports. I'd like to see the definition of air transport infrastructure expanded to include railways and to consider the two sectors as part of one network."

Although **Heathrow Airport** has a big problem with congestion, its operating company BAA has not lobbied for a railway connection on site. The UK Government is investing billions of pounds to develop a **High Speed 2** (HS2) backbone between North and South for the British railways, but there won't be a stop at Heathrow connecting up Birmingham and Manchester. "Heathrow has been strategically focused for decades on getting a third runway, which I predict it will never achieve. But if HS2 stopped at Heathrow, they would get their third runway in the form of a railway connection allowing an easy transfer from plane to train and fast and frequent services to many destinations," Professor Givoni says.

Wasted capacity

Without an HSR connection, Heathrow is doomed to waste about 15% of its stretched capacity on high-frequency short-haul flights in small aircraft to Paris and other nearby cities. "Crazily, there's a direct **Eurostar** HSR connection between central London and Charles de Gaulle Airport, but not between Heathrow and Charles de Gaulle. That's bad news for British Airways and for BAA as they are losing customers to competitors."

Similarly, passengers from the large Northern English cities of Manchester, Liverpool and Leeds are poorly served by both rail and flight connections to Heathrow. Frequently, they bypass London altogether, flying straight to Amsterdam to pick up connecting long-distance flights to destinations like New York. "The alternative would be a rail journey into **Central London**, waving to Heathrow Airport on the way past, then taking the underground, or the express shuttle if they can afford it, to travel backwards to Heathrow. It's quicker to fly to Schiphol in Amsterdam," says Givoni.

The disease of competition between air and rail in Europe is not confined to the UK. Professor Givoni describes a journey he took from Frankfurt, in Germany, to a conference in the Spanish city of Cuidad Real, 185km south of Madrid. Although Ciudad Real is just an hour from the Spanish capital on the high-speed AVE rail line, there is no direct train link from Madrid-Barajas Airport. Although it took him only a couple of hours to fly from Frankfurt to Madrid Airport, he then had to spend a wasteful hour and a half transferring to the railway station in Madrid. "With high-speed rail at Madrid Airport, Cuidad Real would become part of an international network of connected cities, which is better for the local economy," he says.

A handful of regions in Europe have achieved a more integrated model, he says. "**Brussels and Schiphol Airport** in Amsterdam don't waste runway capacity with flights between the airports. Excellent rail services link them together," he says. Similarly, a journey from the UK to Stuttgart could involve flying to Frankfurt, then taking the train rather than another plane. "You buy only one ticket so you fly Airbus 380 to Frankfurt, then transfer to a Lufthansa carriage on a high-speed ICE train. Rail and airline operators share revenues. It's an example of how to achieve rail-air integration."

> Whilst the airline industry is more decentralised and operates like an oligopoly, the railway industry is a full monopoly.

China adopts competitive model

Even in China, the two industries do not interact as harmoniously as one might expect in a more state-dominated economy. Certainly, the development of high-speed rail has been rapid. There are about 20,000km of HSR tracks, which is more than the rest of the world put together. There are also iconic trains that promote China's technological prowess on the world stage, including the **Fuxing high-speed train** between Shanghai and Beijing, which has a top speed of 351km/h and reduces the 1,247-km route to four and a half hours.

China has also officially recognised the need to integrate the different modes of transport and has built dozens of transport hubs with both air and HSR links. But appearance and reality are two different things in **Chinese transportation**, according to Professor Givoni. Despite the apparent integration, competition dominates the mentalities of the two sectors. Last year, Professor Givoni co-authored a research paper about the Shanghai Hongqiao Airport Integrated Transport Hub. Along with his Chinese co-author Xueming Chen, he concluded that, despite excellent infrastructure at the airport, the integration of modes was poor. The researchers blamed institutional barriers. They said that the airlines and railway industries were regulated by different government entities with distinct regulations, revenue sources, cost expenditures, and operating procedures.

Whilst the airline industry is more decentralised and operates like an oligopoly, the railway industry is a full monopoly. "Along several medium-range corridors, the Chinese air and rail sectors compete directly for customers. Each industry, has its own self-interests, lacking a revenue and cost-sharing mechanism," they wrote.

Overall the lack of multi-mode planning negates the impact of the transport hubs at the airports. Operators of rail and aircraft focus on profit maximisation and are blind to the benefits of cooperation. "China has imported from the US and Europe both the institutional divisions between air and rail and the mentality that the sectors have to compete at all costs," Professor Givoni says.

US in the slow lane

Whereas about 900 million Chinese travel by rail each year, roughly double the number that fly, the inverse is true in the US. There are around 600 commercial airports, but in 2016, US rail operator Amtrak had only 31.6 million riders. US trains still chug along at 19th century speeds and it's not unusual to see cars on adjacent highways outpacing them. Officially, the fastest American train is Amtrak's Acela Express, which can reach 240km/h, but averages a miserly 110km/h

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President Obama offered to hand out US$8 billion in his 2009 economic stimulus package to kickstart a high-speed rail programme, but Republican governors rebuffed his offer in states like Ohio, Wisconsin and Florida. In Florida, Governor Rick Scott rejected a US$2.4 billion handout citing concerns about the ongoing costs of operating the trains. Only in the progressive, environmentally conscious state of California has the plan for high-speed rail been embraced. The plan is to create 1,300km of tracks connecting most of the large Californian cities with up to 24 stations. There is a promise of a cheap two-hour-and-40-minute ride between San Francisco's **Transbay Terminal** and LA's Union Station.

But Professor Givoni says California has fallen into the familiar trap of failing to integrate rail and air effectively. "If we fast-forward in California, what model will we get? Will it be collaboration such as we see at Schiphol Airport and between Frankfurt and Lufthansa? Or will we get another Heathrow? We will absolutely get Heathrow. The **air traffic** route from Los Angeles to San Francisco is one of the most densely populated in the world, but high-speed rail won't be going to LAX Airport because they don't want to lose their taxi and parking revenues. If capacity was freed up, they could be put on an A380 to China with 500 passengers in place of a small local plane. It's the familiar mentality of 'we are an airport and rail has nothing to do with us'," he says.

Professor Givoni does not deny the importance of high-speed rail in speeding up some of Europe's long-distance routes. Eurostar, for example, takes just two hours to travel between Paris and London, less than half the previous time for rail and sea combined, and serves around 10 million passengers a year. Similarly, the journey from Paris to Marseille has fallen from six and a half hours in 1975 to three hours on TGV, and the journey from Madrid to Seville has dropped to two and a half hours from six and a half hours. There are more than 7,000km of high-speed tracks in Europe, according to EU data.

But Professor Givoni argues that we should not be blinded by speed. In the majority of cases, integrating modes of transport is more important than maximising speed. What ultimately matters, he argues, is the journey time from door to door. "If I take two hours to get from Paris to London on Eurostar, but it then takes me another three hours to get to Oxford, then what do I care about high-speed trains? There has to be seamless collaboration between all modes of transport."

Speed addiction

However, transport planning is still dominated by the idea that "time is money" and "faster is better". The speed that dominates debates is the maximum operating speed, whereas real times are a result of average speeds. Each additional stop adds around 10 minutes and trains slow down near cities. Whilst a maximum speed of 350km/h is the new standard for HSR, most services operate at far lower average speeds. Professor Givoni says the **TokyoOsaka line**, one of the busiest in the world, operates at an average speed of less than 240km/h. Most of the travel time is spent getting to and from an HSR station.

A further issue with high-speed rail, he says, is that it is often promoted at the expense of other rail initiatives. Substantial operational and maintenance costs take up large chunks of budgets and place HSR in direct competition with conventional services, which deteriorate over time. Super-fast

HSR in direct competition with conventional services, which deteriorate over time. Super-fast speeds also come at an environmental cost as the use of electricity rises exponentially at higher speeds.

"Today the thinking is to invest in super-fast speeds, but research suggests trains that go 200-250 km/h are fast enough and less costly environmentally. From a planning point of view, it sometimes makes more sense to invest a tenth of the money making the journey more pleasant – with comfortable seats, an excellent internet connection, air conditioning for winter and summer. If passengers can use the time to read, sleep, talk, or work, the distinction between fast and super-fast is less significant," he says.

"The most important thing is to see high-speed rail as a strategic mode of transport that has its place in the network, but it has to be properly integrated with all other modes, especially the airports on one side, and the cities on the other."

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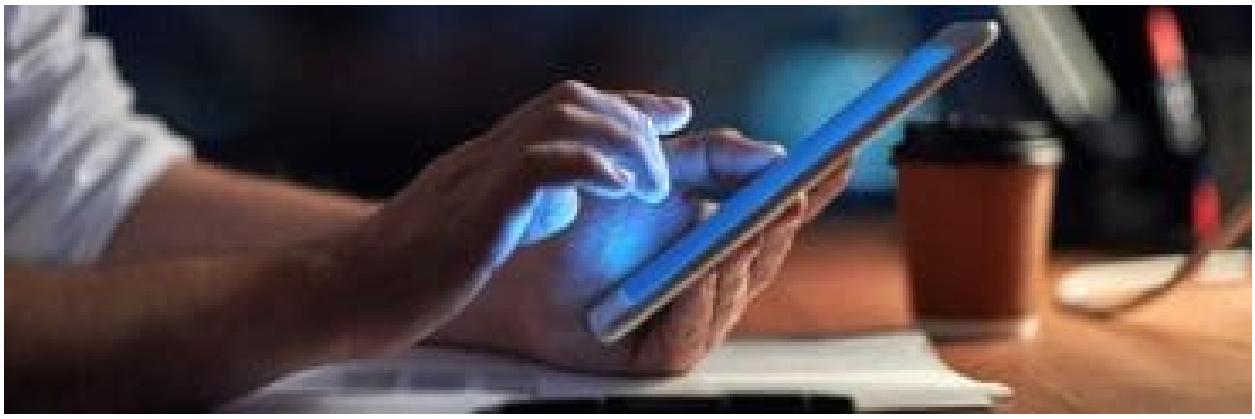

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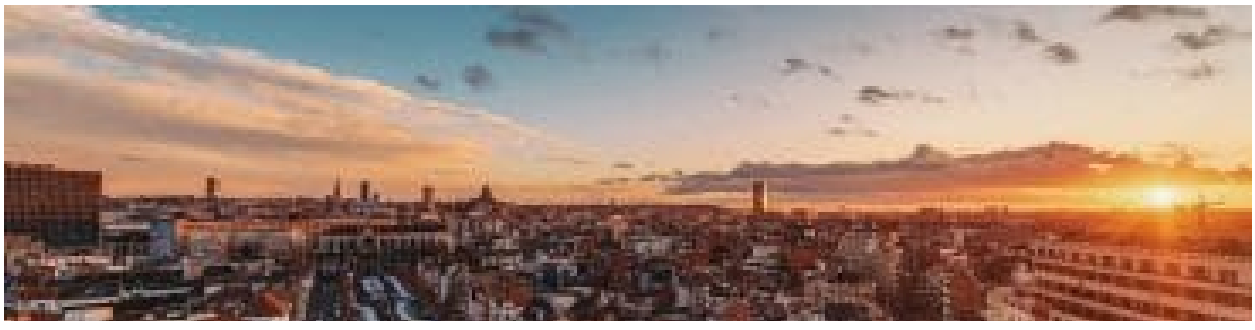

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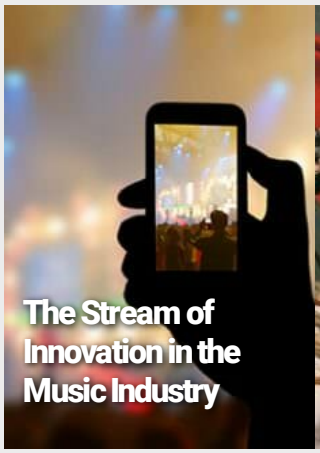

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