



LURE OF TECHNOLOGY PLACES CHINA FACE TO FACE WITH REALITY

De-railing the marvels of China's bullet train innovation

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At a time when China's rapid economic growth is shaping the landscape of international business, serious questions arise on the dangers of accelerated development.

Amidst what was once touted as a project of national pride – that China could build high-speed railway lines both faster and better than anyone else – disaster and speculation of corruption in the Railways Ministry have stifled public enthusiasm in China and given second thoughts to potential buyers of Chinese railway technology.

To the world, the Chinese government's announcement to halt production of future high-speed-train projects came as a huge surprise after the country's train manufacturers trumpeted the technological prowess of the slick and state-of-the-art trains leaving their factories.

The train crash near Wenzhou that killed 40 people and injured a further 191, has seemingly put an end to China's bullet-train euphoria and to its ambition as a railway technology exporter.

Besides the cost in human lives, the accident has given way to a deeper sense of malaise. In addition to the accusations of corruption that earlier this year forced Railways Minister Liu Zhijun to resign, more fundamental questions have come to the forefront concerning the actual point of having a bullet-train network criss-crossing the country and the costs of building infrastructure on such a large scale. Railway expenditure accounts for a large chunk of the country's budget. Furthermore, the Railway Ministry's debt burden stands at USD 280bn, equating to approximately 5% of Chinese gross domestic product. At a time when the Chinese government is advocating a harmonious society, the whole notion of fairness has moved to center stage in the bullet-train debate because only small minority of citizens can afford such a luxury.

Post-disaster operations have shown that China still has plenty of institutional reforms to implement. After ordering the burial of damaged train cars at the site of the accident, the Railway Ministry then had a change of heart and ordered the wreckage to be dug up so that investigators could do their job. However, as the head of the commission of inquiry set up to determine the causes of the collision has the same level of seniority as the Railways Minister, it will be difficult to pin any responsibility on the latter.

The all-powerful Railway Ministry is a microcosm of the entire country as regards to the problems involved in reforming institutions. A *de facto* state within a state, the Ministry even has its own police force and judiciary with dedicated prosecutors and courts. It also sits atop of 30 or so market-listed companies, further blurring the frontier between policy-making and economic activities. The Ministry has benefited from significant leeway in making investments, which can be estimated to total USD 120bn in 2011 alone.

Such largesse is the result of patronage from former President Jiang Zemin, a fervent advocate of high-speed rail, and the clearly stated policy to develop China's infrastructure. Much like the Telecommunications Ministry, the Railways Ministry has for a long time built up prestige by deploying infrastructure on a large scale. Not only is it planning to lay down some 10,000 km of high-speed track, but it is also extending and modernizing its standard railway network. And the passion to expand doesn't grind to a halt at the nation's borders. Through two of its national champions, China Railway Construction Group and China South Locomotive, China reportedly has plans to build railways and deliver trains abroad while offering project financing.

Encouraged by the country's economic growth, the Chinese government has sought to dump revenues into leading-edge technologies. The problem is that one does not become an expert in high-speed trains overnight. France and Japan, countries that can be considered pioneers in this field, spent many years developing their technology. More than a decade elapsed from the time research began to the actual launch of the French *TGV* service in 1981. Moreover, a large portion of the technology for China's bullet trains comes from foreign firms such as Siemens, Bombardier and Alstom. Piecing together all this technology takes time, especially in such a complex matrix as railways. To upgrade to high speed, more has to be done than simply boosting a locomotive's engine. Infrastructure and procedures must be revised from top to bottom.

In addition to whether China has the wherewithal to develop reliable, innovative train technology, one might ask whether this is the approach that fits best with the country's economic development. In addition to bullet trains, China is aiming to develop its own nuclear reactors as well as a high-capacity airliner (the C-919, to rival the Airbus and Boeing duopoly). This question echoes the central tenet of Dan Breznitz and Michael Murphree's work*, namely that China has no need to excel in the R&D arena at all costs in order to sustain economic growth. Innovating within the various stages of the production process would suffice. It is this ability to innovate by lowering costs and coming up with new business models that has made China the world's factory and led to a booming economy.

However, the temptation to excel technologically can often gain a nationalistic dimension, which in China has been fueled by a public policy advocating home-grown innovation. The 'indigenous innovation' policy, which became national dogma in 2006, has offered a blank check to companies willing to participate in China's efforts to close the technological gap. A more sober and realistic approach would be to focus on those firms (e.g., Huawei) who already possess the know-how to move the technological frontier forward.

Success in the economic and technological arenas is papering over the need to reform institutions. Such reforms will be long and pain-staking, and will be far less spectacular than rolling out sparkling new infrastructure. But there is no doubt that, without them, China will struggle to sustain its growth model.

* Breznitz, D. and M. Murphree (2011). Run of the red queen : government, innovation, globalization, and economic growth in China. New Haven, Yale University Press.

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