

HOW CHINA IS RAPIDLY NARROWING ITS TECHNOLOGICAL GAPS

John WONG & ZHAO Litao

EAI Background Brief No. 1248

Date of Publication: 25 May 2017

Executive Summary

1. China has made remarkable progress in science and technology (S&T) development over the years. Indeed, its great leap in military modernisation has started to worry the Pentagon.
2. This is not surprising as China today is the world's second largest economy with the world's largest manufacturing base. In 2015 China spent US\$220 billion (2.1% of gross domestic product) on research and development (R&D), making it the world's second largest R&D spender after the USA.
3. From the start, China's S&T development has been promoted and directly managed by the state. Xi Jinping's support of China's S&T development is by far much more vigorous, politically and financially than his predecessors'.
4. Today, China files the largest number of new patents and trademarks in the world and publishes the second largest number of peer-reviewed scientific papers after that of the USA. Behind its success include, apart from its huge R&D spending, China's large and rapidly growing base of engineering talent.
5. China regularly reviews and adjusts its S&T development plans and vigorously implements them nationwide (by concentrating financial and human resources on mission-oriented programmes).
6. China's top universities are increasingly exposed to heightened competitive pressure through international benchmarking. They constantly reorient their strategies to quickly improve their standing in the world's university rankings.
7. Chinese industries and enterprises are also rapidly becoming an important source of innovation. Some undertake a global "talent hunt" for their R&D centres in China and abroad while others actively seek to buy high-tech firms in Europe and the USA.

8. China's high-tech mergers and acquisitions (M&A) are growing so fast recently that they start to alarm the governments of the USA and Europe. Some multibillion takeover deals were turned down on national security grounds.
9. Without doubt, China is rapidly narrowing its scientific and technological gaps with developed countries. However, "narrowing" is not the same as "closing" the gaps.
10. Most of China's S&T results largely represent "catch-up" work or just refinement of imported technological knowledge, rather than path-breaking breakthroughs. It will be for many years to come, or even a generation, before China becomes a technological leader.