MANOHAR PARRIKAR INSTITUTE FOR DEFENCE STUDIES AND ANALYSES
मनोहर पर्रिकर रक्षा अध्ययन एवं विश्लेषण संस्थान

MP-IDSA
Issue Brief

The Evolution of China's Science and Technology Policy

Opangmeren Jamir

October 08, 2026

Summary

The Chinese political leadership continues to place utmost importance on promoting science for economic development. However, technology's impact on society, especially in the era of automation, remains challenging.

At the National Science and Technology Award Conference held on 8 July 2026 in Beijing, Chinese President Xi Jinping called upon the members of the Chinese Academy of Sciences and the Chinese Academy of Engineering to "accelerate efforts" to become a leading country in science and technology by 2035.[1] This comes against the backdrop of China's 15th Five-Year Plan (FYP) (2026–2030), approved in March 2026, which set an ambitious goal of increasing average annual investment in research and development (R&D) by at least 7 per cent.[2]

Many have applauded China's rapid rise as a global scientific powerhouse. Magdalena Skipper, *Nature's* Editor-in-Chief, lauded the increase in funding for science and technology in China's 15th FYP, stating that "the government understands that science needs financial support", which is "an important part of the growth of a nation".[3] In 2024, China spent US$ 1.03 trillion on R&D, while the US spent US$ 1.01 trillion. This has had geopolitical implications as well. Citing 'national security' and 'other foreign policy interests', the US National Science Foundation announced a ban on scientific research collaboration with Chinese research institutions and universities, effective from 1 October 2026.

On the other hand, it also raises concerns as it suggests geopolitical motives. For instance, the United States and China, naturally considered rivals in R&D investment, have widened the gap: in 2024, China spent US$ 1.03 trillion while the US spent US$ 1.01 trillion.[4] Consequently, citing 'national security' and 'other foreign policy interests', the US National Science Foundation announced a ban on scientific research collaboration with Chinese research institutions and universities, effective from 1 October 2026.[5]

Against the backdrop of the Chinese government's strong focus on science and technology, this brief examines the factors behind the Chinese political fascination with science and technology. It briefly reviews the importance of science to economic growth, which helps explain one of the fundamental reasons the Chinese political leadership continues to prioritise promoting science.

---

[1] **"Xi Calls for Advancing Chinese Modernisation Through Sci-tech Innovation."**, The State Council, The People's Republic of China, 8 July 2026.

[2] **"Outline of the 15th Five Year Plan for National Economic and Social Development of the People's Republic of China"**, *Xinhua*, 13 March 2026.

[3] **"Interview: China's 15th Fiver Year Plans Sets Ambitious Scientific Goals with Clear Pathways, Nature Editor-in-chief"**, *Xinhua*, 2 April 2026.

[4] **"OECD Overall R&D Growth Stable; Government R&D Budgets Decline and Reorient Towards Defence"**, Organisation for Economic Co-operation and Development (OECD), 31 March 2026.

[5] **"Prohibition on Collaborations with Restricted Entities"**, U.S. National Science Foundation, 8 July 2026.

Science and Technology for Economic Growth

In everyday conversation, the terms 'science' and 'technology' are often used as a single entity. But in reality, both have distinct meanings and activities, yet they are highly interdependent.[6] In general, 'science' seeks knowledge based on truth, whereas 'technology' employs that particular knowledge, derived from science, to solve practical problems. Thus, amid persistent debate over whether to emphasise basic scientific research or disruptive technology innovation research, it is generally recognised that basic scientific research has a broader impact than the latter, as technological change and innovation depend on progress in basic scientific knowledge.[7] Hence, scientific powerhouses like China consistently focus on strengthening basic research to enhance their capacity for original innovation.[8]

Certainly, the role of science and technology in economic growth has long been recognised. In Rostow's Stages Theory of economic growth, science and technology remain crucial, especially for low-income countries moving from 'take-off' to sustained growth.[9] However, the impact of science and technology remains uneven as most scientific and technological knowledge is concentrated in developed countries. To eliminate the underdevelopment of developing countries and improve the well-being of humanity through scientific knowledge, even the United Nations in 1979 in the 'Vienna Programme of Action on Science and Technology for Development' recommended major guidelines, including the formulation of national science policy involving planning, budgeting and execution of scientific and technological activities relevant to defined development objectives.[10] Additionally, to promote collective self-reliance among developing countries, it recommended bilateral and multilateral cooperation for joint research and resource utilisation.

China's economic transformation before the 1978 opening and reform, its rise from one of the poorest countries to the world's second-largest economy in terms of Gross Domestic Product is no small achievement. Among the most striking features that have captured the imagination of economists and Western commentators are the

---

[6] Harvey Brooks, **"The Relationship Between Science and Technology"**, *Research Policy*, Vol. 23, No. 5, 1994, pp. 477–486.

[7] Philip Barret et al., **"Why Basic Science Matters for Economic Growth"**, International Monetary Fund, 6 October 2021.

[8] **"Xi Stresses Advancing Basic Research to Solidify Foundation for Building China's Strength in Science, Technology"**, The State Council, The People's Republic of China, 30 April 2026.

[9] W.W. Rostow, **"The Take-off into Self-sustained Growth"**, *The Economic Journal*, Vol. 66, No. 261, pp. 25–48.

[10] **"The Vienna Programme of Action on Science and Technology for Development"**, United Nations Digital Library, 19 December 1979.

three decades' impressive growth rate and the significant reduction in poverty, to which several factors have been attributed.

These include the 'gradualist reform approach', which focused on facilitating township and village enterprises (TVEs) by re-allocating surplus labour from agriculture to labour-intensive light industries. Later, amid rising labour costs, the government shifted focus to capital-intensive sectors, i.e., infrastructure, real estate and communication.[11] In lifting close to 800 million people out of extreme poverty, key drivers included agricultural reforms and industrial restructuring, including the establishment of Special Economic Zones.

This consequently drove rural workers to move to urban areas for jobs in coastal areas and led to substantial public investment in transport, electricity and telecommunications infrastructure.[12] Similarly, economist Yasheng Huang argues that China's remarkable growth and poverty reduction stemmed mainly from rural development and internal reforms such as TVEs and financial liberalisation rather than the dominant narrative of globalisation and state-led industrialisation.[13]

Beyond the various variables highlighted by economists in explaining China's remarkable growth rate over the past decades, the role of science and technology, whether through adoption or innovation, has been a primary contributor to its economic 'take-off'.[14] In this regard, every Chinese leadership has treated science and technology as the foremost 'productive force'.[15]

'Scientism' in Republic of China (1912–1949)

In modern China, a key driver of the quest for scientific knowledge was the adoption of 'scientism' in the first half of the 20th century, particularly among Chinese intellectuals, including scientists.[16] Scientism, a philosophical view, claims that all

[11] Kaiji Chen and Tao Zha, **"China's Macroeconomic Development: The Role of Gradualist Reforms"**, *Journal of Economic Literature*, Vol. 63, No. 4, pp. 1331–1362.

[12] **"Four Decades of Poverty Reduction in China"**, The World Bank, Development Research Center of the State Council the People's Republic of China, 2022.

[13] Yasheng Huang, **"How Did China Take Off?"**, *Journal of Economic Perspectives*, Vol. 26, No. 4, 2012, pp.147–70.

[14] Haiwen Zhou, **"State Capacity and Leadership: Why Did China Take Off?"**, *The Chinese Economy*, Vol. 56, No. 1, 1 April 2022, pp. 50–68.

[15] Song Jian, **"Science and Technology in China: The Engine of Rapid Economic Development"**, *Technology in Society,* Vol. 19, Nos 3–4, August–November 1997, pp. 281–294.

[16] Victor Seow and Sean Hsiang-lin Lei, **"Who is Mr. Science and Why Does He Matter?"**, *East Asian Science, Technology and Society: An International Journal,* Vol. 16, No. 3, 10 October 2022, pp. 269–278.

knowledge is known only through the scientific method (natural science) and marginalises all other methods of human inquiry.[17] The value aspect of Scientism is that only technical means can overcome all human challenges, and thus, it tends to judge society solely by the success of technological progress.

Indeed, the conditions that led to the rise of Scientism stemmed from a series of military defeats at the hands of foreign imperialist powers during the Qing Dynasty and the World Wars. Thus, radical reformers in the Republic, deeply influenced by Scientism, rejected traditional Chinese values, believing they were the root cause of China's downfall in science and technology compared with Western imperial powers. Instead, they proposed introducing scientific knowledge derived from Western ideas.[18]

In his well-known paper, 'Why China has No Science', Chinese philosopher Yu-lan Fung pointed out the fundamental differences in ideals and values between Chinese and Western European civilisation, arguing that Chinese thought, mainly influenced by Taoism, Maoism and Confucianism, focused primarily on inner self-realisation rather than the conquest or understanding of the external world.[19] Thus, in Fung's view, China lagged behind the West because it failed to develop scientific knowledge, as traditional philosophy served no practical purpose.

Consequently, after the 1911 revolution, Science was popularised through platforms such as the Science Society of China, established by overseas Chinese students in 1914, and journals like *Youth*, later renamed *New Youth*, *New Tide,* among others, which captured the imagination that only 'Science' could 'save' China.[20] Ultimately, the Treaty of Versailles' unfavourable outcomes for Chinese interests helped ignite the May Fourth Movement in 1919. Notably, 'Mr Science' and 'Mr Democracy' became symbols of the May Fourth Movement, as Chinese intellectuals, students and workers decisively rejected the traditional values of Confucianism and demanded the introduction of Western ideas of scientific knowledge and democratisation, which they believed would restore China's respect in international affairs.[21]

---

[17] D.W.Y. Kwok, ***Scientism in Chinese Thought 1900-1950***, Yale University Press, New Haven, 1965.

[18] Y.C. Wang, **"Intellectuals and Society in China 1860-1949"**, *Comparative Studies in Society and History*, Vol. 3, No. 4, July 1961, pp. 395–426.

[19] Yu-Lan Fung, **"Why China Has No Science: An Interpretation of the History and Consequence of Chinese Philosophy"**, *International Journal of Ethics*, Vol. 32, No. 3, 1922, pp. 237–263.

[20] Zuoyue Wang, **"Saving China through Science: The Science Society of China, Scientific Nationalism, and Civil Society in Republican China"**, *Osirs,* Vol. 17, No. 1, 2002, pp. 291–322.

[21] Sigrid Schmalzer, **"The Global Comrades of Mr. Democracy and Mr. Science: Placing May Fourth in a Transnational History of Science Activism"**, *East Asian Science, Technology and Society: An International Journal*, Vol. 16, No. 3, 21 May 2021, pp. 305–326.

Chinese intellectual Chen Duxiu, a pioneer of the May Fourth Movement and co-founder of the Communist Party of China, popularised the idea that to advocate Mr Democracy, one should oppose Confucianism, traditional ethics and codes of ritual; and to defend Mr Science, one should oppose traditional arts and religion.[22]

Thus, appraising the progress of Chinese science during the Republic, Chinese historian Guangbi Dong underlined that unlike Western science, where knowledge was pursued out of 'pure curiosity', in China "doing Science for Science's sake" never took hold, as the Chinese began pursuing Science only under the threat of colonialist gunboats.[23] During the Republic period (1912–1949), although no major scientific projects took off due to a weak Republican state and frequent civil war between the nationalist parties and the Communist Party, the establishment of Academia Sinica in 1928, the highest national academic institution, marked the institutionalisation of China's modern science and technology. Chinese scientists did not work in isolation; rather, they were trained abroad, especially in the United States, Britain, France, Germany and Japan.

Science under the Communist Party of China

Although the Chinese Communist Party (CCP) formulated its own Science policies after the establishment of the People's Republic of China in 1949, the CCP had long considered Science an important tool in ideological struggle and a productive force for economic development since the Republic of China.[24] As a result, the Chinese government took direct responsibility for scientific development, and the Chinese Academy of Sciences was founded on 1 November 1949. Thus, under the CCP, along with Scientism, Marxist thought shaped the progress in science, technology and innovation.[25]

Under Mao's leadership and under the policy of 'leaning to one side' by aligning with the Soviet Union, China shifted scientific advancement from the Anglo-Saxon model

[22] Jacob Laufgraben, **"May 4th, 1919: The Birthday of Modern China"**, The Nonviolence Project, University of Wisconsin-Madison, 4 February 2023.

[23] Guangbi Dong, **"The Political Background of Pattern Transformation in the Chinese System of Science and Technology During the 20th Century"**, *Culture of Science*, Vol. 5, No. 1, 2022, pp. 16–32.

[24] Gong Yuzhi, **"Historical Development of the Chinese Communist Party's Scientific Policy (Prior to the Founding of the People's Republic"**, in Fan Dainian and Robert S. Cohen (eds), *Chinese Studies in the History and Philosophy of Science and Technology*, Kluwer Academic Publishers, Vol. 179, 1996, pp. 13–25.

[25] Erik Baark, **"Xi Jinping's Discourse on Science, Technology and Innovation: An Analysis of Ideologies and Theoretical Context"**, *Asian Journal of Technology Innovation*, 3 March 2026, pp. 1–18.

to the Soviet model.[26] Soviet assistance laid the foundation for China's industries, including training more than 10,000 Chinese experts in several universities in the Soviet Union and Eastern European countries. Of course, under Mao's leadership, China made notable progress, including successfully testing an atomic bomb in 1964, a hydrogen bomb and launching a satellite in 1970.

But the Mao period (1957–1976) is seen as an example of "stagnation in technological innovation and economic development", primarily because of Mao's political ideology. Because Mao believed only collective struggle could transform communist society, he proposed that 'science' should 'walk on two legs', meaning scientists/experts and peasants should learn from and teach each other, eventually blurring the knowledge gap.[27] During the Great Leap Forward and the Cultural Revolution, the 'Thought Reform Campaign' directed at scientists and the rise of the 'Anti-Rightist Struggle' (the Gang of Four) only disrupted the higher education system and paralysed scientific progress.[28] Those scientists and engineers who survived the Mao era described that they cautiously "watched the political winds rather than scientific trends".[29]

Contrary to Maoist ideology, when Deng Xiaoping came to power in 1978, the Marxist thought of technology as a productive force came to the forefront of development, in which, among the four pillars of modernisation, i.e., agriculture, defence industry and science and technology, Deng Xiaoping considered science and technology the primary element by arguing that "without modern science and technology, it is impossible to build modern agriculture, industry, and defence".[30]

From Deng Xiaoping onward, Chinese leadership under Jiang Zemin and Hu Jintao underscored science and technology as a productive force for economic development. Under current President Xi Jinping, it went a step further with the promulgation of 'high-quality development' at the 19th National Congress of the CCP in 2017 and propounding the concept of 'new quality productive forces' in September 2023 as a blueprint for Chinese economic development during the 21st century or, in Xi terms,

[26] Wengin Shen et al., **"Towards a Chinese Model: De-Sovietization Reforms of China's Higher Education in the 1980s and 1990s"**, *International Journal of Chinese Education*, Vol. 11, No. 3, 5 September 2022, pp. 1–15.

[27] Emil Smith et al., **"Walking on Two Legs: A Panel Discussion of Science Policy in the People's Republic of China"**, *Bulletin of the American Academy of Arts and Sciences*, Vol. 28, No. 2, November 1974, pp. 26–41.

[28] Shuping Yao, **"Chinese Intellectuals and Science: A History of the Chinese Academy of Sciences (CAS)"**, *Science in Context*, Vol. 3, No. 2, 1989, pp. 447–473.

[29] Dali Yang, **"State and Technological Innovation in China: A Historical Overview, 1949–89"**, *Asian Perspective*, Vol. 14, No. 1, 1990, pp. 91–112.

[30] **"Speech At the Opening Ceremony of the National Conference On Science"**, The Selected Works of Deng Xiaoping, 18 March 1978.

'in the new era'. Hence, to promote high-quality development in China, new quality productive forces of advanced technologies like AI, semiconductors and quantum computing will be the key drivers.[31]

Can China be Saved *only* by Science?

"Our nation is at risk" was the very opening sentence in a 1983 report by the National Commission on Excellence in Education to the U.S. Secretary of Education, proposing that, for any educational reform, 'science education' was one area that required attention.[32] Since the first half of the 20th century, Chinese political leadership has attached great importance to developing science for nation-building and to modernise the Chinese economy. Thus, describing the nature of the Chinese political system's influence on science and technology, sinologist Richard P. Suttmeir points out that although the Chinese science system has loopholes, strong state leadership of Science is treated as an 'article of faith'.[33]

China's Science policies, implemented by different leaderships, may not be perfect, as critics continue to point to a top-down approach, a lack of 'open science', and even accuse it of intellectual property theft. Nevertheless, the Science policies implemented over the years have undeniably delivered results, propelling China to become one of the world's major scientific powerhouses. For instance, according to the latest *Nature Index Data*, which ranks institutions based on research articles in 145 high-quality journals across the natural and health sciences, the Chinese Academy of Sciences continued to hold the top rank along with eight other Chinese universities in the top ten.[34] In 2025, China made several breakthroughs in AI (DeepSeek) and a drug for Parkinson's disease.[35] The Tiangong Space Station was completed in November 2022; the Zhurong rover landed on Mars in May 2021; and the Chang'e-4 lunar mission landed in 2019, with Chang'e-5 retrieving lunar surface samples to Earth in 2020.

[31] Xi Jinping, **"Advancing New Quality Productive Forces is Essential and a Key Priority for Fostering High-Quality Development"**, *Qiushi Journal*, 12 November 2024.

[32] **"A Nation at Risk: The Imperative for Educational Reform"**, *The Elementary School Journal*, Vol. 84, No. 2, November 1983, pp. 112–130.

[33] Richard P. Suttmeir, **"Chinese Science Policy at a Crossroads"**, *Issue in Science and Technology*, Vol. XXXXVI, No. 2, 2020, pp. 58–63.

[34] **"2026 Research Leaders: Leading Institutions"**, *Nature Index*.

[35] Weijie Zhao and Xiaoling Yu, **"China's Top 10 Breakthroughs in Science and Technology in 2025"**, *National Science Review*, Vol. 13, No. 5, 2026, pp. 1–6.

Indeed, exploring the relationship between Chinese political leadership and Science is only one part of the story of Chinese scientific and technological advancement. The impact of technology on Chinese society, however, is another part of the story which cannot be overlooked. Amid remarkable economic success, Chinese society has been experiencing increasing inequality, environmental degradation and public health challenges.

Against this backdrop, social scientists often point to Scientism as a fault.[36] Chinese philosopher Guangwei Ouyang argues that the post-Mao years have been shaped by Scientism. Deng Xiaoping's adoption of a "technocratic model of economic reform"—where society is governed by engineers and professionals with technical expertise "to develop social policy and solve social problems based on technological principles"—has only created a 'Faustian bargain' and a pervasive moral crisis within Chinese society.[37]

Recent court decisions by the Hangzhou Intermediate People's Court as well as by the Guangzhou Intermediate People's Court in favour of workers who have been replaced by AI, along with compensation to be paid by the company to workers, indeed, reflect the impact of technologies and growing anxiety in Chinese society under the wave of automation, where human labour is likely to be replaced by AI and robotic workers.[38]

In recent years, Chinese scientific communities have had intense discussions about reformulating the essence of 'scientific culture' in the Chinese context.[39] Some have also proposed drawing on traditional Chinese values to address these concerns more effectively. Thus, against the backdrop of Chinese leadership continuing to prioritise Science for development, especially in the era of promoting 'high-quality development' through new quality productive forces, a critical question remains: how can the Chinese political leadership implement policies that balance material development and cultural progress?

[36] Susan Greenhalgh and Li Zhang (eds), ***Can Science and Technology Save China?***, Cornell University Press, 2020.

[37] Guangwei Ouyang, **"Scientism, Technocracy, and Morality in China"**, *Journal of Chinese Philosophy*, Vol. 30, No. 2, May 2023, pp. 177–193.

[38] Wang Songsong, **"Chinese Courts Rule AI-driven Layoffs and Pay Cuts Illegal"**, *China Daily*, 5 May 2026.

[39] Qide Han, **"Scientific Culture: Its Western Origin and Its Context in Modern China"**, *Cultures of Sciences*, Vol. 2, No. 1, March 2019, pp. 5–8.

About the Author



Dr. Opangmeren Jamir is Associate Fellow at the Manohar Parrikar Institute for Defence Studies and Analyses, New Delhi.

Manohar Parrikar Institute for Defence Studies and Analyses is a non-partisan, autonomous body dedicated to objective research and policy relevant studies on all aspects of defence and security. Its mission is to promote national and international security through the generation and dissemination of knowledge on defence and security-related issues.

Disclaimer: Views expressed in Manohar Parrikar IDSA's publications and on its website are those of the authors and do not necessarily reflect the views of the Manohar Parrikar IDSA or the Government of India.

© Manohar Parrikar Institute for Defence Studies and Analyses (MP-IDSA) 2026

Manohar Parrikar Institute for Defence Studies and Analyses
1, Development Enclave, Rao Tula Ram Marg
New Delhi 110 010 India
T +91-11-2671 7983 F +91-11-2615 4191
www.idsa.in
Twitter @IDSAIndia
www.facebook.com/ManoharParrikarInstituteforDefenceStudiesAnalyses