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Issue Brief

China's Road to Great Rejuvenation: From Opening Up to New Quality Productive Forces

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Summary

While the NQPF holds potential to drive China's national rejuvenation, the success of the enterprise will depend on the Chinese leadership's ability to navigate through the complex geopolitical landscape, accessibility constraints and management of the socio-economic and ethical implications of the emerging technologies.

Introduction

The Open Source AI model DeepSeek R1 launched in late January 2025 by a Chinese AI start-up DeepSeek, sent shockwaves through the global tech sector. The Big Tech companies like Meta Platforms and Open AI were left scrambling for a response at the sudden emergence of an alternative AI model that rivalled the US-developed AI products.1 Observers noted it to be a major breakthrough due to its engineering innovation that significantly increased cost-efficiency in development of AI models.2

The popularity of the DeepSeek AI model also hit the US stock market as US companies like Nvidia and Nasdaq suffered heavy losses in terms of fall in their stock prices.[3] While this development has been hailed as a major milestone in the US–China tech war, it also marks a major leap in the development of China's New Quality Productive Forces (NQPF) (comprising big data, AI and other disruptive technologies) that Beijing sees as key to the great national rejuvenation.

China's Road to Great National Rejuvenation

The rhetoric of national rejuvenation, that is resurgence of China as a strong and wealthy country shaking off foreign domination and humiliation, has been part of the Chinese political discourse since the beginning of the 19th century. Generations of Chinese leaders, political elites and scholars have expressed yearning for *fuxing* (复兴) through quest of *fuqiang* (富强).[4] The term 'great rejuvenation of the Chinese nation' (**中华民族的伟大复兴**) was first used by President Jiang Zemin in 1999 during the 50th anniversary of the founding of the People's Republic of China.[5]

This phrase gained prominence in 2012, after Xi Jinping declared national rejuvenation to be the dream of the Chinese nation. In his speech at the exhibition of Road to Rejuvenation, he stated that:

> Everyone has an ideal, ambition and dream. We are now all talking about the Chinese Dream. In my opinion, achieving the rejuvenation of the

[1] Jocelyn Fernandes, **"How DeepSeek's AI Disruption Sent $593 Billion Shockwave to Nvidia, Rattled Global Stock Markets"**, *Mint*, 28 January 2025.

[2] Alexandra Tremayne-Pengelly, **"What Silicon Valley Leaders are Saying About China's A.I. Miracle DeepSeek"**, *Observer*, 27 January 2025; Victor Dey, **"Nvidia Praises DeepSeek's Breakthrough Despite Losing $500B in Market Cap Because of It"**, *Observer*, 29 January, 2025; Peter Hanbury, Jue Wang, Padraic Brick and Alessandro Cannarsi, **"DeepSeek: A Game Changer in AI Efficiency?"**, Bain & Company, February 2025.

[3] **"How China's Deepseek Sent Shockwaves in American Stock Market, Wiping Out Billions from Market Cap of Tech Superstar"**, *The Times of India*, 28 January 2025.

[4] Friso M. S. Stevens, **"China's Long March to National Rejuvenation: Toward a Neo-Imperial Order in East Asia?"**, *Asian Security*, Vol.17, No. 1, 2020, pp. 46–63.

[5] Kang Shoubang, **"A Declaration of The Great Rejuvenation of the Chinese Nation"**, *Guangming Daily*, 14 October 1999.

> Chinese nation has been the greatest dream of the Chinese people since the advent of modern times.[6]

Chinese leadership's understanding of what will lead to national revival has differed in different stages. During Mao Zedong's time, the Soviet economic model was seen as the road towards national revival. Therefore, following proclamation of the PRC, Mao, along with implementing state control over economic resources and land collectivisation, also emphasised development of heavy industries over light industries and agriculture.[7] The massive campaign of Great Leap Forward was undertaken to industrialise the country and accelerate economic growth. While the Great Leap movement was withdrawn owing to disastrous consequences, the Soviet growth model remained.

A complete overhaul of the Chinese economic system came in 1979 with Deng Xiaoping launched the 'Open Door Policy' whereby Beijing shifted its strategy of achieving economic modernisation through closed door economic development to active foreign investment and technology sharing.[8] Speaking to a group of Chinese political and industrial leaders in 1979, Deng observed that in order to achieve socialist modernisation, China should use foreign funds and technology and establish Sino-foreign joint ventures.[9]

In talks with Prime Minister of the Netherlands in 1987, Deng reiterated that reform and opening to the outside world was key to invigorate China and the policy of opening up will only expand even after China would become a moderately developed country.[10] Therefore, in order to attract foreign capital and technology, the government established special economic zones, open coastal cities, the economic and technology development zones, the delta open zones, the peninsula open zones, the open border cities and the high-tech industry development zones.

Deng's successors vigorously continued the policy of opening up as part of rejuvenating China.[11] When Xi Jinping came to power, he introduced the concept of

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[6] **"Achieving Rejuvenation is the Dream of the Chinese People"**, NEAC, 29 November 2012.

[7] Dwight H. Perkins, "China's Struggle with the Soviet Growth Model, 1949–1978", in Debin Ma and Richard von Glahn (eds), *The Cambridge Economic History of China*, Cambridge University Press, 2022, pp. 565–605.

[8] Shigeo Kobayashi, Jia Baobo and Junya Sano, **"The 'Three Reforms' in China: Progress and Outlook"**, Japan Research Institute, September 1999.

[9] **"We Should Make Use of Foreign Funds and Let Former Capitalist Industrialists and Businessmen Play Their Role In Developing the Economy"**, *The Selected Works of Deng Xiaoping, Selected Works Vol. 2.*

[10] **"Reform and Opening to the Outside World Can Truly Invigorate China"**, Excerpt from a talk with Prime Minister Ruud Lubbers of the Netherlands; *The Selected Works of Deng Xiaoping, Selected Works Vol. 3.*

[11] Cui Liru, **"Peaceful Rise: China's Modernisation Trajectory"**, *The International Spectator*, Vol. 47, No. 2, 2012; Robert Weatherly, *Mao's China And Post-mao China: Revolution, Recovery And Rejuvenation*, World Scientific, 2022.

high-level opening up to the outside world.[12] Opening up to the outside world has remained a key developmental strategy for Beijing, even after four decades. One of the major reasons relates to large-scale technology transfer from the West, especially the US.[13] The technology transfers along with inflow of foreign capital played a crucial role in improving China's industrial base, especially the energy, electronic and machine building sectors, making it a major economic player at the global level.[14]

First, Beijing leveraged market access and brought in policies imposing tech transfers from foreign to Chinese firms. Implementation of such policies increased by six-fold from 2002 to 2012. Majority of the implementation occurred in strategic industries with implications for military use.[15] Further, under the scope of joint ventures, China attracted huge investments from the US in Chinese advanced technologies sector and invested in early-stage tech companies crucial to innovation in artificial intelligence, autonomous vehicles, augmented/virtual reality, robotics and block-chain technology.[16]

However, since the Sino-US tech war began in 2018, the technology transfer from the US has been constrained. Both Trump and Biden administration instituted several technology export restrictions, limiting Chinese access to advanced and sensitive technologies with implications for military use. Therefore, in the face of increasing technological and economic decoupling with the West, along with ageing population and environmental degradation as China is gearing to achieve its Second Centenary Goal of building a modern socialist country in all respects by 2049, Beijing has shifted its attention to cultivating NQPF.

Chinese discourse on NQPF and National Rejuvenation

The notion of NQPF indicates shift from traditional productive forces of land and labour to science and technology as new productive forces. With emphasis on innovation, the aim is to develop disruptive and cutting-edge technologies in AI, quantum computing, robotics, automation, big data processing, manufacturing, aerospace among others. The list of future industries published by the Chinese

[12] **"The Third Session of the 12th National People's Congress Opened in Beijing"**, *People's Daily*, 6 March 2015.

[13] Xie Ming-gan, **"China's Open-Door Policy and Sino-American Trade"**, *Business Horizons,* Vol. 30, No. 4, 1987, pp. 10–15.

[14] Wang Xing Ming, **"Technology Transfer and Innovation in China"**, *Industry and Higher Education,* Vol. 9, Issue 1, 1995, pp. 42–26.

[15] **"Assessing the Strengths and Limitations of China's Technology Transfer Policies"**, Stanford Center on China's Economy and Institutions, 1 July, 2023.

[16] Michael Brown and Pavneet Singh, **"China's Technology Transfer Strategy"**, Defense Innovation Unit Experimental, January 2018; "The Third Session of the 12th National People's Congress Opens in Beijing", *People's Daily Online*, 2015.

Ministry of Industry and Information Technology designates humanoid robots, nano-manufacturing, quantum computing, nuclear fusion, hydrogen energy, exploration of the Moon and Mars, deep-sea mining and genetic engineering.[17] The breakthrough technologies are expected to give rise to new industries, improve economic efficiency, revolutionalise military affairs and enhance PLA's combat effectiveness.[18]

China perceives a number of challenges to its national rejuvenation. Internally, China grapples with a rapidly ageing population, shortage of labour, environmental degradation, regional inequality and economic slowdown. Corruption remains a persistent issue, hindering efficient governance and economic development and military modernisation. Externally, the country faces increasing antagonism from the West, a slowing global economy, and potential disruptions to international trade. Beijing views these challenges posing significant risks to China's dream of national rejuvenation.

The policy elites perceive that NQPF with emphasis on intelligent technology will be able to manage both external and internal challenges. In terms of internal challenges, Chinese policy elites argue that China is gradually losing its traditional advantages of cheap labour and vast natural resources. Environmental considerations also constrain industrial activity.[19] In that context, NQPF offers a new avenue for enhancing the growth momentum. Intelligent technology will not only be able to replace human labour but also to a certain extent replace human mental labour.

Further, artificial intelligence with big data, will be able to make smart decisions with regard to market demand (avoid over-production), better identify market opportunities and accordingly allocate resources. Second, new quality productive forces through optimising production and manufacturing systems, upgrading traditional industries and transforming to intelligent manufacturing will be able to facilitate low energy and raw material consumption, cleaner production, reduce greenhouse gas emissions and carbon footprint.[20]

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[17] Arthur R. Kroeber, **"Unleashing 'New Quality Productive Forces': China's Strategy for Technology-Led Growth"**, Brookings, 4 June 2024.

[18] Yanzi Xu, **"Explaining China's Focus on 'New Quality Productive Forces'"**, Centre for Data Innovation, 28 May 2024.

[19] Yao Shujie and Zhang Xiaoqian, "The Connotation, Strategic Value and Realization Path of the New Quality Productivity", *Journal of Chongqing University Social Sciences,* Vol. 30, No. 1, 2024, pp. 112–128. Li Xiaohua, **"Create New Advantages for Development with New Quality Productivity"**, Aisixiang, 12 December 2023.

[20] Zhibiao Liu, "New Production Relations Driven by New Quality Productive Forces: Trends, Challenges and Countermeasures", *China Finance and Economic Review*, Vol. 13, No. 4, 2024, pp. 45–58; Jun He, "The Theoretical Gap in the Study of New Quality Productive Forces and the Economic Analytical Perspective of 'Heterogeneity'", *China Finance and Economic Review*, Vol. 13, No. 4, 2024, pp. 59–75; Zhong Ying, **"Strong Confidence and Stable Expectations, Committee Members Talk: Leading the Development of New Quality Productive Forces with Scientific and Technological Innovation"**, *People's Political Consultative Conference Daily*, 2 January, 2025.

Further, in the agricultural sector, innovation in seed technology and the application of new research can drive the development of modern farming practices. By embracing scientific advancements in agriculture, China can improve crop yields, enhance food security and create a more sustainable food system, securing the nation's future needs. Third, the emerging industries of photovoltaics, new energy vehicles and bio-medicine will promote economic diversification, expand the industrial base, increase their competitiveness, in the process generate more jobs and provide employment opportunities in the newly emerging industries sector.

Fourth, NQPF through scientific and technological innovation will be able to better connect regions both physically and virtually various regions of production, provide better transportation corridors, increase employment opportunities and promote balanced development of the regions. Further, NQPF will be able to better provide social services in terms of education, medical care, culture, targeted poverty alleviation programmes, improving the quality of life in rural areas.[21]

In terms of external challenges, Chinese policy elites argue that NQPF represent the forces of the 4th Industrial Revolution which will restructure the form and nature of the existing production relations. As demonstrated by history, it was the control of the forces of production and lead in disruptive technologies that enabled a country to achieve a dominant position. For instance, the US became an industrial power as it achieved large-scale production line method and breakthroughs in electrification technology.[22]

Therefore, for China to achieve its national rejuvenation, it should be able to gain a dominant position in the international system through leading in new quality productive forces.[23] Second, in the face of increasing technological decoupling by the West, lead in NQPF will ensure that the national economy and the industrial system will not collapse. Chinese observers contend that Western countries led by the US are increasingly using their technological superiority to suppress competition from China.

Therefore, breakthroughs in core technologies would help China to build an independent, controllable and safe and efficient economic and industrial system.[24] Further, China could create sufficient lead in asymmetric competitive advantage in technology, prompting the other side not to choose containment. Similarly,

[21] Yanzi Xu, **"Explaining China's Focus on 'New Quality Productive Forces'"**, no. 18.

[22] Jun He, "The Theoretical Gap in the Study of New Quality Productive Forces and the Economic Analytical Perspective of 'Heterogeneity'", no. 20.

[23] Ibid.

[24] Yang Huixin and Jiao Yong, **"Understanding the Connotation of New Quality Productivity"**, *Aisixiang*, 22 December 2012.

disruptive tech innovation, intelligent machine production will add to the value of the products produced, enabling China to move up the global industrial supply chain.

Finally, with regard to defence modernisation, Chinese analysts argue that new quality productive forces will help enhance the combat effectiveness of the PLA in the backdrop of changing combat methods. It is opined that future wars will be high-end, large-scale and technologically advanced and will be carried out under the threat of nuclear escalation. Integration of the NQPF into the military can lead to technological upgrades which in turn would improve the level of informatisation and intelligence of the combat weapons and equipment.

Also, reforms of defence science and technology could strengthen the strategic capabilities in emerging fields such as space and the Internet and help secure the initiative in future military struggles. With emphasis on AI, data and robotics, the NQPF will enhance combat capability in unmanned domain, provide more effective training with realistic conflict simulation, and create intelligent combat weapons with information systems embedded in them.[25]

Conclusion

Notwithstanding China's push to cultivate new quality productive forces, significant challenges lie ahead. For instance, continuing US technology export restrictions hinder China's access to advanced semiconductors, chips and manufacturing equipment. Further, US allies, following Washington's lead, are also restricting supply of critical manufacturing equipment and raw materials to China. Similarly, uncertainties prevail regarding industrial supply chain disruption and shortage of skilled personnel. Some analysts are also skeptical about the impact the NQPF on productivity in consumer-oriented service sector. While the NQPF holds potential to drive China's national rejuvenation, the success of the enterprise will finally depend on the Chinese leadership's ability to navigate through the complex geopolitical landscape, accessibility constraints and management of the socio-economic and ethical implications of the emerging technologies.

[25] Lian Zhenyu and Li Xiaoge, **"Promote the Efficient Integration of New Quality Productivity and New Quality Combat Effectiveness"**, *China Communist Party News Network*, 7 April 2024.

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