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One or many: the decision-making behind China's science and innovation policies

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KEY TAKEAWAYS

- The policy brief highlights several important signals that challenge the conventional belief that Beijing's science and innovation policies are linear in nature and carefully orchestrated solely by a small cohort of political elites in the power corridors of Beijing.
- It offers a basic framework to gauge who the key players are and to what extent some of these key players play pivotal roles in shaping China's current science and innovation policies.
- China's experience highlights the importance of sustained coordination between government institutions, research communities, and industry, as well as the role of long-term policy continuity in supporting emerging technologies. Appreciating this complex ecosystem will be essential for Europe as it seeks to strengthen its own science and innovation capabilities.

Keywords

Science

Innovation

Bureaucratic Politics

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Introduction

On 22 January 2025, DeepSeek, the Chinese homegrown Artificial Intelligence (AI) company, released its latest model and blew a trillion-dollar hole in Wall Street, on the basis that the until-then relatively unknown Chinese firm would undermine the United States's AI giants. It was heralded in the media as a 'Sputnik moment', raising questions as to how China has incubated ground-breaking companies such as DeepSeek and Huawei.[1]

International observers have frequently interpreted China's ambition to become a global champion of innovation as a personal priority for President Xi Jinping.[2] In the eyes of Chinese senior leadership, maintaining innovation capability is the only pathway to managing a protracted competition with Washington while enhancing China's economic resilience.

This policy brief does not deny the absolute importance of Chinese leaders' views on science and innovation. Yet the party leadership must rely on various enablers, including senior technocrats, small-medium size companies and individual talents, to deliver its gigantic ambitions. The pursuit of science and innovation excellence is not a new policy goal for Beijing, but many emerging technologies move at a speed beyond the comprehension of senior policymakers and ordinary people alike. As a result, these enablers are tasked with explanation, experimentation and eventual policy implementation.

As many have observed, China takes a whole-of-nation approach to sustaining its level of commitment to science and innovation.[3] This involves decision-making, resource allocation and coordination between companies and governments at various levels. In the case

of science and innovation policies, many Chinese domestic companies have created the policy demand from the decision-makers.

In European institutions, China's innovation prowess has been met with more fear than admiration. As AI and other technologies become critical to productivity, European policy-makers must decide how they want to respond to the example set by China. It is essential to understand how decisions on the science policies underlying these innovations were made in Beijing and who the key players are.

This policy brief attempts to serve as a basic guide to understanding China's science and innovation policymaking processes, including who the key players are and what impact they have in shaping China's current science and innovation policies. Drawing from a wide range of official documents, secondary literature and in-person interviews with companies and policy practitioners, it aims to challenge the conventional belief that Beijing's monolithic decision-making process has led to technological prowess – examining instead whether China's rapid progress in science and innovation is driven by a combination of state direction, experimental companies and local government ambitions.

The absolute importance of science policy

Global investors and China observers alike have been poring over Beijing's latest Five-Year Plan, which was published on 13 March 2026.[4] The plan sets out China's economic growth targets for the next five years and, crucially, places science and innovation front and centre in driving the Chinese economy.

Beijing has sent clear signals regarding the importance of pursuing scientific self-reliance in the medium to long-term, as a pathway to upgrading the Chinese economy and consolidating national resilience. The state-run media has repeatedly emphasized 'achieving scientific self-reliance and domestic innovation', making it one of the top three headlines broadcast on prime-time news across the country throughout 2025.[5] The 22 members of the CCP's all-powerful politburo gather monthly for 'study sessions', which included a focus on cutting-edge technologies in four out of ten total sessions in 2025.[6]

Beijing's deeply rooted anxieties about technological vulnerabilities and the urgency of economic transformation underly the move to position science and innovation policies as the absolute priorities of Chinese leadership. These anxieties derive from China's continuously worsening relationship with the US and its allies, which has previously impacted the supply chain behind China's technological developments. Beijing is also convicted that its economy and productivity could be accelerated enormously with greater utilization of the latest technologies available.

The key players at central government level

China's science and innovation policymaking is shaped by both political leadership and interactions among multiple bureaucratic institutions with overlapping mandates.

In March 2023, the annual National People's Congress approved the establishment of a new Central Science and Technology Commission.[7] The commission sits directly under the party leadership and is chaired by Ding Xuexiang, China's Executive Vice Premier and a member of the Politburo Standing Committee, the highest decision-making body within the party and the state. The newly established commission has authority to coordinate the efforts of key ministerial actors to accelerate China's technological breakthroughs and address strategic bottlenecks. It also acts as the final arbiter in cases of overlapping policy jurisdictions or inter-ministerial competition.

Beneath this overarching coordination mechanism, three central ministries under the State Council of the People's Republic of China play particularly important roles in developing and implementing science and innovation policies. These are the Ministry of Science and Technology of the People's Republic of China (MOST), the Ministry of Industry and Information Technology of the People's Republic of China (MIIT) and the National Development and Reform Commission (NDRC).

MOST has traditionally served as China's central policymaking body for science, technology and basic research. It formulates national science and technology strategies, plans and policy frameworks that guide research and innovation across the country. Its remit also includes overseeing basic and strategic research, managing national research programmes and major scientific initiatives and coordinating with scientific institutions. At the macro level, MOST also plays a key role in shaping China's national innovation system and defining scientific priorities.[8] In essence, the ministry acts as the chief planner for China's national science and research strategy. For example, in the development of advanced semiconductors, MOST managed the allocation of early-stage research funding, particularly for universities and research institutes.

In contrast, MIIT is more focused on linking technological research with industrial development. Its chief functions are to implement industrial and digital technology policies, establish technical standards and regulate technology sectors.[9] As Beijing has sought to consolidate its position as a global manufacturing leader, MIIT's authority over high-tech commercialization and innovation-driven industrial development has expanded. One prominent example is the widely discussed 'Made in China 2025' initiative, which was initiated and largely implemented by MIIT, albeit to some international controversy.[10]

The third key institution, the NDRC, does not formally include science and innovation in its core remit but, as China's central economic planning agency, it plays an increasingly important role in the country's technological development strategy. Science and innovation

have become central components of China's broader economic growth model, resulting in the NDRC's involvement in areas such as AI and robotics policy.[11] The commission oversees national industrial development planning and is responsible for drafting significant components of China's Five-Year Plans.[12] It also determines strategic emerging industry catalogues and allocates major infrastructure investments, including those related to digital infrastructure. Consequently, when the technology sector requires large-scale capital investment, industrial restructuring, or national-level infrastructure development, NDRC involvement is essential.

Contrary to the conventional perception of China as a monolithic decision-maker, the reality of science and innovation policymaking is far more complex than decisions made by a single leader or institution.

With these three ministries simultaneously involved in shaping Beijing's science and innovation policies, stakeholders on the receiving end of these policies must carefully navigate which institutions to engage with and for what purposes. Provincial governments, research institutions and major technology companies alike must also assess 'which ministry holds influence over specific policy areas, who allocates the funding and where their own interests can be most effectively represented'.[13]

China's recent efforts to develop a domestic semiconductor industry provide a clear illustration of this triangular policymaking structure. Establishing a semiconductor fabrication plant requires massive capital investment, alignment with national industrial policy and support for technological breakthroughs.[14] As a result, semiconductor companies in China must engage with multiple ministries: seeking early-stage research funding from MOST, ensuring their technical and industrial standards align with MIIT regulations and ultimately obtaining approval on any major investments from the NDRC. While companies rarely publicly align themselves with specific bureaucratic actors, in practice they must navigate these institutional channels to secure funding, regulatory support and political capital.

Although competition among these three ministries is largely bureaucratic rather than openly political, major Chinese technology firms are often drawn into – and can sometimes leverage – the triangular relationship between MOST, MIIT and NDRC, particularly in sectors such as artificial intelligence, robotics, semiconductors, and telecommunications equipment.[15]

The key players at provincial government level

China's innovation and industrial policies are highly centralised in design but highly decentralised in execution. As several China specialists have pointed out, provincial governments are not passive recipients of policy directives but active players with a degree

of autonomy; they often navigate – and at times, strategically balance – the priorities of different central ministries in Beijing.[16]

The Politburo of the Chinese Communist Party and the State Council typically provide macro-level policy guidance for specific science and innovation sectors. However, given China's vast economic and geographic diversity, provincial and municipal governments often have a better understanding of what policy approaches will work most effectively in their respective regions in pursuit of Beijing's broader innovation ambitions.

Provincial governments are therefore not merely implementers of centrally designed policies. Instead, they use their fiscal resources, administrative capacity and local policy initiatives to develop programmes that align with central government priorities while also serving regional economic and political interests. One critical factor shaping these dynamics is that the political promotion of provincial governors and party secretaries has historically been closely tied to indicators such as local economic growth and productivity. As a result, provincial leaders are incentivized to mobilize financial resources and political capital to support policies that can deliver measurable economic outcomes.

Over the past decade, Shanghai, Hangzhou and Shenzhen, three of China's most economically dynamic cities, have been vying to position themselves as the leading hub for China's home-grown AI industry.[17] Each city brings distinct advantages to this competition, from talent pools and industrial ecosystems to geographic location and existing technology clusters.

Among them, Shanghai is one of the most comprehensive centres for AI development in China.[18] The city is widely recognised as a key regional hub supporting the country's advancement in artificial intelligence, particularly in terms of industry scale, talent concentration, ecosystem development and cross-sector integration. One of Shanghai's most significant advantages lies in its large pool of skilled professionals. Estimates suggest that the city hosts roughly one-third of China's AI talent, giving it a substantial human capital advantage.[19] To build on this, the municipal government has developed policy frameworks and initiatives aimed at retaining and attracting AI talent.

The Shanghai Municipal People's Government has also leveraged its political networks and institutional influence in support of this ambition. Notably, Li Qiang, the current Chinese premier, previously served as the city's party secretary until March 2023. During this period and afterwards, Shanghai positioned itself as the regular host of the World Artificial Intelligence Conference (WAIC) and supported the creation of the Center for Global AI Governance at Fudan University.[20] Through these initiatives, the city aims not only to serve as a national centre for AI innovation and talent development, alongside Hangzhou and Shenzhen, but also to establish itself as the natural home for international dialogue on AI governance and capacity building. This positioning helps Shanghai contribute to shaping China's preferred narratives and policy frameworks in global discussions on AI governan-

ce, an ambition that Hangzhou and Shenzhen have not yet pursued to the same extent.

Shanghai's strategy illustrates how provincial governments in China do not simply implement central directives but actively compete to shape emerging technology sectors, using local advantages, policy experimentation and political connections to influence national innovation priorities.

How companies are shaping China's science and innovation policy

In the past, Chinese companies, particularly state-owned enterprises, have often been perceived as largely following government directives. However, the dynamics in the science and innovation sector are frequently quite different from those observed in traditional industries. Due to the nature of technological innovation, companies operating at the technological frontier often play a more proactive role in shaping government decision-making on science and innovation.

Chinese firms have three main pathways through which they can influence government policy: demonstrating technological breakthroughs; integrating industrial clusters; and creating state–industry feedback loops.

The 'AI Plus Action Plan', part of China's 15th Five-Year Plan, aims to embed artificial intelligence across a wide range of economic activities nationwide over the next five years. However, this initiative did not originate solely from the central government. Instead, companies specializing in AI and robotics first achieved significant technological breakthroughs, which in turn generated a demand for ambitious policies.

The state recognised the potential of these technologies to address labour shortages and upgrade China's manufacturing base, prompting targeted industrial policy responses. As a result, the influence of domestic firms is reflected in the latest national strategy emphasizing the importance of integrating AI across industries.

A notable example is Unitree Robotics, one of China's leading robotics companies. In late February 2026, the German Chancellor Friedrich Merz visited the company and was greeted by a line-up of robots demonstrating their advanced functionality.[21] Unitree illustrates how technology firms can play an important role in shaping China's science and innovation policy landscape. The company's founder, Wang Xingxing, was appointed deputy chair of China's humanoid robot standards committee, allowing industry engineers to participate directly in shaping national technical standards. [22]

This development reflects a broader trend in which private technology entrepreneurs are increasingly involved in formulating national technical rules, including standards for robotics hardware design and the regulation of AI capabilities in humanoid robots. Rather than designing regulatory frameworks unilaterally and imposing them on companies, Bei-

jing has increasingly allowed leading domestic companies, such as Unitree, to co-develop regulatory structures for emerging technology sectors.

Another prominent example is DeepSeek, whose rapid rise has also influenced policy debates in Beijing. Following the success of its R1 language model, the company gained both national and international recognition. Its founder, Liang Wenfeng, was invited to brief Premier Li Qiang on the company's technological progress.[23]

DeepSeek's breakthroughs also prompted debates among Chinese policymakers and legal scholars about strengthening AI governance and regulatory frameworks. However, the company's low-cost, open-source AI models aligned with Beijing's broader strategy of promoting domestic innovation and technological self-reliance. This was reflected in the firm's designation as a 'National High-Tech Enterprise', a status that comes with tax incentives and preferential access to state-backed research and development funding.[24]

Together, these cases illustrate how China's leading technology firms are not merely policy recipients but increasingly act as policy entrepreneurs, shaping regulatory debates and influencing the direction of national innovation strategies.

Conclusion

This short policy brief does not seek to capture the full complexity of China's science and innovation decision-making processes. Instead, it provides an overview of indicators that challenge the conventional belief that Beijing's science and innovation policies are linear in nature and carefully orchestrated solely by a small cohort of political elites in the power corridors of Beijing.

There is an overarching goal of pursuing technological self-reliance, initiated by Xi Jinping and placed at the core of Beijing's macroeconomic agenda. This is also an integral component of what the Chinese leadership refers to as 'comprehensive national security', which will require more than a political blueprint articulated by policymakers to achieve.

A wide range of actors play pivotal roles in realizing Beijing's technological ambitions. Some operate within government ministries responsible for science and technology governance, while others are tasked with implementing industrial policy and guiding economic planning. This ecosystem should remind international policymakers that achieving scientific breakthroughs and fostering innovation is a multifaceted endeavour, requiring financial resources, technical expertise, human capital and sustained political commitment.

At both the central and provincial levels, Chinese governments understand where their comparative advantages and institutional autonomy lie within the broader ecosystem of technological development. Rather than simply implementing directives from the central leadership, many local authorities adapt overarching policy priorities to align with region-

al development strategies and economic interests.

Meanwhile, the Chinese companies discussed throughout this brief have emerged as domestic champions in their respective sectors and, in some cases, de facto agenda-setters in areas such as AI, quantum technologies and robotics. However, their influence in shaping Beijing's science and innovation policies may become more constrained as the government increases scrutiny over data protection and corporate accountability in the name of national security. Technology governance is emerging as a new policy frontier in China, as both the state and the private sector attempt to strike a delicate balance between innovation and regulation.

For European policymakers, the key lessons lie not only in recognizing the speed with which China has advanced its technological capabilities, but also in understanding how different actors within the system position themselves, as resource allocators, policy implementers and policy pioneers. China's example highlights the importance of sustained coordination between government institutions, research communities and industry, as well as the role of long-term policy continuity in supporting emerging technologies. Appreciating this complex ecosystem will be essential for Europe as it seeks to strengthen its own science and innovation capabilities in an increasingly competitive technological landscape.

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