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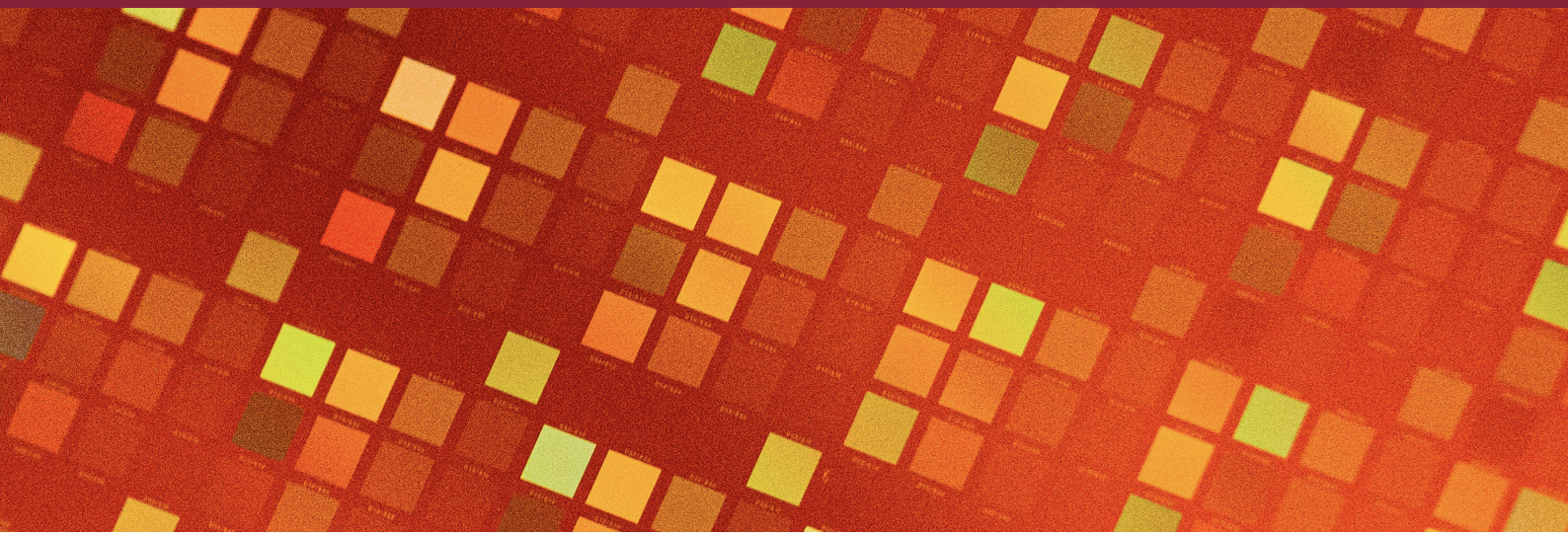
CHINA Trends #24

Semiconductors: China's Industrial Policy Steamroller in Motion



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China Trends seeks understanding of China from Chinese language sources. In an era where the international news cycle is often about China, having a reality check on Chinese expressions often provides for more in-depth analysis of the logic at work in policies, and needed information about policy debates where they exist. China Trends is a quarterly publication by Institut Montaigne's Asia Program, with each issue focusing on a single theme.

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Introduction

Do US technology transfer restrictions on semiconductors deliver tangible results in outcompeting China? Ask two semiconductor professionals, and you are likely to get two opposite answers. Yes, leveraging bottlenecks on lithography and EDA is likely to work, and key companies like Nvidia, TSMC, and ASML, embedded into mutually reinforcing ecosystems, will continue to innovate together faster than Chinese competitors. No, China's intense state support for its semiconductor sector, its national determination, and the scale of its domestic market will ultimately enable it to catch up and overtake rivals in America, East Asia and Europe—as it has been doing in electric vehicles and could be on the path to achieve in biotechnologies.

The semiconductor sector is the only one among the ten "Made in China 2025" priority areas where the government's targets have not been met. Analysts in the first camp see this as proof of the effectiveness of US restrictions, while those in the second argue that China's catch-up is only a matter of time. In particular, they note that Chinese firms are on the verge of dominating mature-node production, establishing cost and scale advantages that will displace competitors globally and create ripple effects.

Many in the West are familiar with this debate, which also takes place within China itself. Yet from a Chinese perspective, the problem is framed differently. **It is not a question of whether the United States can slow China, but rather a question of how effective Chinese government policies are in promoting technological self-reliance, national resilience and ultimately industrial dominance**. The long-term strategic vision is clear. What matters is the mix of policies to achieve goals and adjust to the international environment.

> Overall picture is that of a relentless steamroller, determined to advance and level all obstacles in its path.

The soon-to-be-adopted 15th Five-Year Plan (2026–2030) will provide an updated roadmap for China's semiconductor and AI-chip ambitions.[1] Targets include semiconductor sales exceeding 2.4 trillion yuan (±288 billion euros), annual production of 600 billion chips, full domestic capability below 22nm, breakthroughs in 3–5nm and 7–10nm

[1] *"Recommendations of the Central Committee of the Communist Party of China for Formulating the 15th Five-Year Plan for National Economic and Social Development," Xinhua, October 28, 2025, https://english.news.cn/20251028/efbfd0c774fd4b1c8daeb741c0351431/c.html.*

processes, and 50 percent of global mature-node capacity by 2030. The overall picture is that of a relentless steamroller, determined to advance and level all obstacles in its path.

It Is All About Scale

At the heart of China's semiconductor policy is a hybrid industrial system that blends centralized strategic direction with decentralized market competition. Jeremy Chih-Chen Chang calls it "market-driven but state-commanded": **the government deliberately fosters intense competition among firms and provincial governments to accelerate innovation and build scale**. Local authorities function as venture-capital-style investors through guidance funds, while central authorities monitor outcomes and consolidate successful players into national champions.

While the significant overcapacity inherent to this approach poses serious challenges to China's competitors, it is too often mischaracterized as a fundamental Chinese weakness. Many Chinese analysts see it differently. **Overcapacity is intentional inefficiency, a strategic tool that ultimately strengthens industrial competitiveness and secures global market share**. Today, redundancy is tolerated across clusters in Hefei, Wuxi or Wuhan, but it is temporary. In the end, weaker firms are systematically weeded out, leaving globally competitive players to thrive.

At this stage of its semiconductor ecosystem development, **China seeks to replicate a hallmark of the BYD model—creating a vertically integrated ecosystem** capable of supporting a vast network of specialized subcontractors, while sustaining innovation across the whole network. Achieving this requires concentrated investment through a nationwide pseudo-Integrated Device Manufacturer (IDM) model. While earlier phases encouraged decentralization, the current strategy emphasizes centralized mobilization of industrial and innovation resources, replicating the integration of design, manufacturing, and packaging under a unified strategic management logic.

While Europe debates "European preference" in public procurement, Beijing has made domestic adoption mandatory for state-funded infrastructure, including cloud computing, smart cities, and digital government projects. These demand-side interventions are designed to accelerate structural consolidation. Policies first piloted in Shanghai, which required 50 percent domestic sourcing, have been extended nationwide, guaranteeing a market for companies like Huawei, Biren Technology, and Cambricon. The approach itself is familiar since **leveraging public markets domestically was key in establishing Huawei's global position in telecommunication networks**.

In semiconductors, it is currently being applied at full speed, and even accelerated. In November, China began requiring that state-funded data center projects use only domestically produced AI chips,[2] ordering facilities less than 30 percent complete to remove any foreign components, while more advanced projects are assessed on a case-by-case basis. Analysts highlight that **demand-side policies allow the ecosystem to mature as domestic adoption progresses**, ensuring that production capabilities, R&D, and market absorption in China evolve in a synchronized manner.

In this overall strategic setup, Huawei has emerged as one of China's greatest assets. Huawei not only integrates a vast network of manufacturing suppliers, it also plays a key role in supporting innovation and defining standards. Chinese analysts point to the "systemic-thinking approach" (系统性思维) as a key strategic advantage China enjoys in orchestrating and sustaining industrial policies. In the case of

[2] *"Exclusive: China Bans Foreign AI Chips from State-Funded Data Centres, Sources Say," Reuters, November 5, 2025, https://www.reuters.com/world/china/china-bans-foreign-ai-chips-state-funded-data-centres-sources-say-2025-11-05/.*

Huawei, doubling production of Ascend 910C chips, for example, can take advantage of the initiative to align future AI model development with domestic hardware production, so that both sides benefit.

Self-Confidence Matters, Even as a Posture

At the same time, **a certain triumphalism can be detected in China regarding the strategic use of export controls as instruments of retaliation against US measures**. These controls are portrayed domestically as creating leverage to disrupt Washington's approach to technology transfers and as evidence of China's growing ability to impose escalation dominance—not only in its relationship with the United States but also vis-à-vis Europe. Licensing requirements for rare earth elements, gallium, and germanium, along with retaliatory anti-dumping investigations and other tools of economic statecraft, are being formalized as mechanisms of "normal reciprocity" and as instruments to protect domestic industries. Many countries have yet to fully assess the implications of these measures for their defense sectors, as **China plans to issue general-purpose licenses for civilian users while restricting access for military end-users in defense electronics**.

The drive to remove strategic vulnerabilities is a leading force explaining China's constant employment of industrial policies. "You should not build a house on someone else's foundation" (*那就好比在别人的墙基上砌房子*) is the motto of this approach,[3] as noted by Filip Šebok. One should probably add that **doubts and questioning are to remain hidden from foreign view in a country that tightly controls communication with foreigners**. Overall, US export restrictions on advanced lithography, Electronic Design Automation (EDA) software, and AI chips are clearly perceived in China not as temporary obstacles but as a long-term strategic challenge.

Experts would like to see those restrictions play the role of a catalyst for indigenous innovation, as summarized by the phrase "short-term pressure, long-term acceleration" (*短期承压, 长期加速*). Development of Huawei's Ascend AI chips, domestic EDA tools and lithography, progress in 3D packaging and chiplet technologies appear strategically indispensable in this context. But even if US export controls were relaxed, **Chinese industrial planning would remain structured to achieve at least near-parity with the United States, if not superiority**, given that the two countries are locked in a competition of ecosystems.

> The drive to remove strategic vulnerabilities is a leading force explaining China's constant employment of industrial policies.

Chinese analysts underscore that China's strategic trajectory is invariant to US policy shifts: even if export restrictions were eased, the country would maintain its course toward technological sovereignty, innovation superiority and global market domination. In the short term, the United States is expected to maintain its lead in sub-3nm high-end chips and Nvidia's CUDA-based ecosystem, while China's development of specialized AI applications is poised for significant progress, supported by the scale of its domestic market. **China is likely to strengthen its emerging advantage in mature-node production through cost-efficient manufacturing, unless coordinated trade defense and demand-side measures are implemented** by the United States, the European Union, Japan, South Korea, Taiwan, and perhaps India and Singapore, which at the moment seems a goal out of reach.

[3] *Shen Yi, "英伟达被约谈再次说明, 霸权逼我们必须成为'六边形战士'" [Nvidia's Being Summoned for Talks Once Again Illustrates that Hegemony Forces us to Become "Hexagonal Warriors"], Guancha, July 31, 2025, https://web.archive.org/web/20250802111330/https://www.guancha.cn/ShenYi/2025_07_31_785057.shtml.*

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Fighting to Win: China's Response to US Semiconductor Export Controls

An **"ecosystem war" (生态战)**, with the US seeking to lead the de-Sinicized AI ecosystem—that is how Li Yan, Director of the Institute of Science and Technology and Cybersecurity at the China Institutes of Contemporary International Relations (CICIR), the think tank of China's Ministry of State Security, describes the US approach to competing with China in the AI domain. She argues bluntly that "we must be soberly aware that the Sino-US technological competition is a long-term, high-pressure strategic game, and we cannot harbor any illusions or wishful thinking."[1]

And indeed, **there is in China a consensus about the long-term dimension of US-China technology competition**. From that perspective, the October 30 meeting in Busan between Donald Trump and Xi Jinping who settled on a deal that is likely to bring a temporary truce, but not a lasting *modus vivendi* between the two superpowers locked in an increasingly tense competition. While arrangements on removing tariffs were reported intensively, it is the developments in the technology field and related export controls that are set to shape the future of the competition.

> There is in China a consensus about the long-term dimension of US-China technology competition.

As a part of the deal, the US agreed to postpone for a year the application of the Bureau of Industry and Security (BIS) "50 percent rule", while China similarly deferred the application of new extensive export controls on rare earths and related technologies. No decision on allowing the export of Nvidia's most advanced Blackwell chips was made during the talks, despite Trump's earlier hints that he would consider the move. In follow-up statements, the White House denied any plans to allow the export of Blackwell chips.[2]

[1] *Li Yan, "中美科技竞争是长期性、高压式战略博弈, 不能抱任何幻想" [The US-China Technology Competition Is a Long-Term, High-Pressure Strategic Game; We Cannot Harbor Any Illusions], China's Diplomacy in the New Era, September 22, 2025, https://web.archive.org/web/20251112095933/https://cn.chinadiplomacy.org.cn/2025-09/22/content_118090840.shtml.*

[2] *Amrith Ramkumar, "White House: No Plans to Sell Nvidia's Blackwell Chip to China—for Now," The Wall Street Journal, November 4, 2025, https://www.wsj.com/livecoverage/stock-market-today-dow-sp-500-nasdaq-11-04-2025/card/white-house-no-plans-to-sell-nvidia-s-blackwell-chip-to-china-for-now-pdIY5hDGqAUmZMMwwbpX.*

Jin Canrong, a renowned political science academic from Renmin University, argues that the Busan deal is unlikely to bring an end to US-China tensions. Jin observes that China's approach to the United States has changed since Trump 1.0, with **Beijing now ready to fight back**.[3] He attributes it to China's growing strength in technology and industry, the realization that China also has "its own cards to play", such as rare earths, and learning that Trump "bullies the weak and fears the strong" (*欺软怕硬*).

Resisting US Technological Hegemony

The Trump administration's approach to semiconductor export controls has exhibited volatility, facing a lack of internal cohesion and outside pressures from the industry.[4] In May 2025, the Trump administration rescinded the Biden-era AI Diffusion Rule, which established a tiered global system governing the export of US technology.[5] At the same time, the BIS issued a warning that Huawei's chips were likely to be subject to the US Foreign Product Rule due to the US technology being employed in their development, and their users worldwide could thus be found in violation of US export controls.[6] Washington also moved to impose new restrictions on the export of Electronic Design Automation (EDA) tools to China in May.[7] In August, Washington further restricted the export of semiconductor manufacturing equipment to China, in what was presented as closing "a Biden-era loophole."[8]

> Chinese analysts see the US approach as part of a long-term strategy of technology containment.

However, the Trump administration also **relaxed some of the restrictions** when it allowed for the export of Nvidia's H20 and AMD's MI308 chips in July, securing a deal that would have the companies pay 15 percent of their China revenue to the US government.[9] Moreover, the United States also lifted its EDA export ban in July, with China agreeing to expedite rare earths shipments curtailed in reaction to Washington's earlier move.[10] Trump has also **indicated potential further relaxation of chip exports**.[11]

Analyzing these constant tactical moves, **Chinese analysts see the US approach as part of a long-term strategy of technology containment**. Soon after Trump returned to the White House, Chinese analysts were expecting the new administration to intensify the use of export controls in relations with China. In an analysis of the development of the US approach,[12] researchers from the International Monetary Institute at Renmin University note the US

[3] *Jin Canrong, "为什么今年的对美斗争策略和之前不一样了?" [Why Is the Strategy for Confronting the US Different From Previous Years?], November 3, 2025, https://web.archive.org/web/20251112100036/https://www.guancha.cn/JinCanRong/2025_11_03_795533_s.shtml.*

[4] *Noah Berman and Eliot Chen, "Walling Off China," The Wire China, September 7, 2025, https://www.thewirechina.com/2025/09/07/walling-off-china/.*

[5] *"Department of Commerce Announces Rescission of Biden-Era Artificial Intelligence Diffusion Rule, Strengthens Chip-Related Export Controls," Bureau of Industry and Security, May 13, 2025, https://www.bis.gov/press-release/department-commerce-announces-rescission-biden-era-artificial-intelligence-diffusion-rule-strengthens.*

[6] *Ibid.*

[7] *Liam Mo and Brenda Goh, "Exclusive: Synopsys Halts China Sales Due to US Export Restrictions, Internal Memo Shows," Reuters, May 30, 2025, https://www.reuters.com/world/china/synopsys-halts-china-sales-due-us-export-restrictions-internal-memo-shows-2025-05-30/.*

[8] *"Department of Commerce Closes Export Controls Loophole for Foreign-Owned Semiconductor Fabs in China," Bureau of Industry and Security, August 29, 2025, https://www.bis.gov/press-release/department-commerce-closes-export-controls-loophole-foreign-owned-semiconductor-fabs-china.*

[9] *"Nvidia and AMD to Pay 15% of China Chip Sale Revenues to US Government," Financial Times, August 11, 2025, https://www.ft.com/content/cd1a0729-a8ab-41e1-a4d2-8907f4c01cac.*

[10] *"Why the U.S. Lifted its Design Ban and What it Means," Sourceability, July 28, 2025, https://sourceability.com/post/why-the-u-s-lifted-its-design-ban-and-what-it-means.*

[11] *Helen Davidson, "Trump Sparks Concern after Suggesting he Might Allow Sales of Nvidia's Advanced AI Chips in China," The Guardian, August 12, 2025, https://www.theguardian.com/world/2025/aug/12/nvidia-chip-china-sale-trump-blackwell.*

[12] *"美国出口管制政策的框架、影响与展望" [Framework, Impact and Outlook of US Export Control Policy], International Monetary Institute, May 22, 2025, https://web.archive.org/web/20251112101242/https://news.qq.com/rain/a/20250522A03XM800?suid=&media_id=.*

shift in its export policy toward the goal of consolidating US technological hegemony and maintaining technological leadership, with export controls becoming a tool to suppress competitors. In response, China should strengthen its independent R&D capabilities, engage emerging markets, and optimize its own countermeasures by strengthening internal government coordination and cooperation with relevant companies on the export controls issue.

In the current export controls on China, Xiao Junpeng (China Foreign Affairs University) and Zhang Ting (CICIR) see echoes of the US erstwhile approach to Japan in the semiconductor field in the 1980s.[13] However, they argue that while in the case of Japan, it was semiconductor industry leaders that lobbied the US government for the policy, now it is the government in the lead, **submitting US companies to the interests of maintaining technology hegemony and protecting national sovereignty**, despite their commercial interests in China.

Fei Junzi (pen name), from the Shenzhen Electronic Chamber of Commerce Industry Think Tank, analyzed the changes in the US semiconductor export policy.[14] According to the author, the US measures are **a sign of "strategic anxiety"** about the competition from China, exhibiting "the essential nature of the struggle between technological hegemony and independent innovation." Trump 2.0 is seen shifting to a more comprehensive **"dual blockade" of "technology supply disruption + legal deterrence".**

Fei further believes that the impact of the restrictions will be that of "short-term pressure, long-term acceleration" (*短期承压，长期加速*)—the US efforts will eventually support the process of indigenous innovation, as evidenced by the progress in domestic EDA tools in mature processes and the success of Huawei's Ascend AI Chips. The author argues that China could work to circumvent process limitations through utilizing chiplets, 3D packaging, and quantum computing. Still, the global trends are likely to lead to a **"dual track competition" between the United States and China**, with the former leading in the high-end market (EDA for below 3nm, CUDA ecosystem), and China holding an advantage in mature processes and specific use-cases.

According to Zhang Xin of the Center for Digital Economy and Legal Innovation Research at the University of International Business and Economics, the United States decided to rescind the ban on the H20 chips for four reasons: **the argument for their military application was found to be weak, as foreign experts believe Chinese military purposefully avoids the use of foreign chips due to the risks involved**;[15] Chinese domestic chips such as Huawei's Ascend 910C now outperform Nvidia's H20, reducing the rationale for maintaining the export ban. At the same time, Nvidia's economic interests in China have been severely affected by the restrictions, prompting the US government to reconsider its position. Finally, US companies such as Oracle and Google have already purchased and deployed the advanced GB200 chips in large quantities, and exports of H20 will not endanger their leading position in AI infrastructure.

[13] *Xiao Junpeng and Zhang Ting, "权力流散和权力集聚: 美国两次发起对外半导体产业制裁的比较研究" [Power Decentralization and Concentration: A Comparative Study of Two US Sanctions Against the Semiconductor Industry], Journal of Xiangtan University (Philosophy and Social Sciences), January 2025, https://chn.oversea.cnki.net/KCMS/detail/detail.aspx?dbcode=CJFD&dbname=CJFDLAST2025&filename=XTDX202501020&uniplatform=OVERSEA&v=r1UWOubrE_6sVe6H2-P0avWPkuhsSK3GLu9r973lMUsAnMVc7H_oBilBkjCbEKe7.*

[14] *Fei Junzi, "从华为昇腾芯片禁令到EDA断供: 美国半导体出口管制政策演变与中美科技竞争格局分析" [From the Huawei Ascend Chip Ban to the EDA Supply Disruption: An Analysis of the Evolution of US Semiconductor Export Control Policy and the Sino-US Technology Competition Landscape], Shenzhen Electronic Chamber of Commerce Industry Think Tank, May 29, 2025, https://web.archive.org/web/20251112153510/https://mp.weixin.qq.com/s?__biz=MjM5MDcyNDM2NA==&mid=2650856261&idx=3&sn=7c0b024da991c88e6ba84697af105662&chksm=bc974aeaf03aad807fed5e50e5393ec5b028ef5270ff80236f866c5a55e5abd4d251390b182d&scene=27.*

[15] *Chen Jingwen, "H20芯片解禁, 怎么看?" [What's the Take on the Lifting of the H20 Chip Embargo?], People's Daily, August 5, 2025, https://web.archive.org/web/20250826230137/https://paper.people.com.cn/rmrbhwb/pc/content/202507/22/content_30089382.html.*

Zhang argued that allowing the export of the H20 could temporarily slow the process of domestic substitution, yet **China's progress in developing indigenous chips has become strategically irreversible**. Chinese firms increasingly recognize that relying on the H20 risks repeating the mistakes of the past chip shortages, should Washington again tighten export controls, or Nvidia suspend supplies under political pressure. Zhang further contended that US-China competition is likely to evolve into a **"tiered competition":** low- and mid-range chips will compete directly in shared markets, while the high-end segment will develop along separate trajectories, with distinct standards and ecosystems.

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Wang Ning, Associate Research Fellow at the Institute of World Economics under the Ministry of Commerce, observes a shift in the focus of US export controls, from restricting technology acquisition to undermining the market for Chinese chips, as illustrated by the recent rescission of the US AI Diffusion Rule.[16] According to Wang, this represents a strategic adjustment aimed at preserving America's global market leadership while minimizing damage to the interests of the US AI industry, which was harshly critical of the AI Diffusion Rule. Overall, Wang believes that **China's ability to merge the development of AI with a strong domestic industrial base** for AI applications gives it a competitive advantage to gain the upper hand in the competition with the United States.

Doubling Down on Indigenization

The relevance of allowing the sale of H20s to China appeared to prove moot with **Beijing's assertive moves on the use of foreign-made chips** in the following months. In September, China launched an anti-trust investigation into Nvidia,[17] and the Cyberspace Administration of China (CAC) instructed major tech companies to cease testing the RTX Pro 6000D chips developed by Nvidia specifically for the Chinese market. In November, following the Trump-Xi meeting, China supposedly issued new guidance banning the use of foreign-made AI chips in state-funded data centres,[18] manifesting that its **policy to reduce and ultimately eliminate exposure to the US AI stack is unlikely to change direction**.

Commenting on the news that Nvidia chips licensed for exports to China could feature embedded backdoors and kill switches to facilitate their ultimate control by the United States,[19] Shen Yi, an outspoken Fudan University professor, opined that **relying on foreign chips in core areas was antithetical to China's interests**.[20] "No matter how large or valuable an internet company is, if it heavily relies on foreign countries for core components and its supply chain is controlled by others, it is like building a house on someone else's foundation—no matter how big or beautiful, it may not withstand the storms and could even be easily destroyed" (一个互联网企业即便规模

[16] *Wang Ning, "打压中国, 美国新芯片政策难如愿" [The US's New Chip Policy, Aimed at Suppressing China, Is Unlikely to Achieve its Desired Outcome], May 20, 2025, Finance Sina, https://web.archive.org/web/20251112101825/https://finance.sina.com.cn/jjxw/2025-05-20/doc-inexeazn1673594.shtml.*

[17] *"英伟达违反反垄断法 市场监管总局依法决定实施进一步调查" [Nvidia violates anti-monopoly law, State Administration for Market Regulation decides to conduct further investigation in accordance with the law], State Administration for Market Regulation, September 15, 2025, https://web.archive.org/web/20251112102041/https://www.samr.gov.cn/xw/zj/art/2025/art_66b8363c3a194ba0a394a843d6cf3fd1.html.*

[18] *"Exclusive: China Bans Foreign AI Chips from State-Funded Data Centres, Sources Say," Reuters, November 5, 2025, https://www.reuters.com/world/china/china-bans-foreign-ai-chips-state-funded-data-centres-sources-say-2025-11-05/.*

[19] *"国家互联网信息办公室就H20算力芯片漏洞后门安全风险约谈英伟达公司" [The Cyberspace Administration of China Summoned Nvidia for Talks Regarding the Security Risks of Backdoor Vulnerabilities in H20 Computing Chips], Cyberspace Administration of China, July 31, 2025, https://web.archive.org/web/20250731062848/https://www.cac.gov.cn/2025-07/31/c_1755675743897163.htm.*

[20] *Shen Yi, "英伟达被约谈再次说明, 霸权逼我们必须成为'六边形战士'" [Nvidia's Being Summoned for Talks Once Again Illustrates that Hegemony Forces us to Become "Hexagonal Warriors"], Guancha, July 31, 2025, https://web.archive.org/web/20250802111330/https://www.guancha.cn/ShenYi/2025_07_31_785057.shtml.*

再大、市值再高, 如果核心元器件严重依赖外国, 供应链的"命门"掌握在别人手里, 那就好比在别人的墙基上砌房子, 再大再漂亮也可能经不起风雨, 甚至会不堪一击).

Furthermore, in September, China announced an anti-dumping investigation into analog chips manufactured on mature nodes (≥40 nm) imported from the United States and an investigation into US "discriminatory measures" in the semiconductor sector.[21] According to the "Wisdom Observatory" account on Guancha, these measures are set to create a level playing field for Chinese companies in this industry segment, until now dominated by foreign players, including the United States, the European Union, and Japan.[22] The account notes that this move might have a broader effect, **strengthening supply chain risk awareness** among Chinese companies and **leading them to "re-evaluate their supplier structures and increase their reliance on domestically produced chips."**

China's Export Control Measures Are Here to Stay

According to an article in Yicai, under the state-owned Shanghai Media Group, Chinese export controls on rare earths are not expedient measures, but rather reflect China's security and national interests.[23] The suspension following the Busan meeting does not signify a termination of these controls; unless further adjustments are made, they will automatically be renewed after one year. These measures are portrayed as made "in consideration of striving for a fair and reasonable international economic and trade order through countermeasures." The article notes that **the pause in implementation is a valuable "window of opportunity" for companies to improve their internal compliance measures**.

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China has matched US measures in controlling semiconductor exports with its own export control policies, **gradually developing a comprehensive system based on a strong legal and administrative framework**. It is clear that export controls are now **a permanent feature of China's foreign economic toolbox**, and specifically policy in the semiconductor sector.

[21] *"商务部公告2025年第27号 公布对原产于美国的进口相关模拟芯片发起反倾销立案调查" [The Ministry of Commerce – Announcement No. 27 of 2025 Announcing the Start of an Anti-Dumping Investigation into Imported Analog Chips Originating in the United States], Ministry of Commerce of the People's Republic of China, September 13, 2025, https://web.archive.org/web/20250913130926/https://www.mofcom.gov.cn/zwgk/zcfb/art/2025/art_c7f379bfff21421596c6f1df5d925400.html.*

[22] *"心智观察所| 反倾销'双响炮': 中国打响模拟芯片保卫战" [Wisdom Observatory | Anti-dumping "Double Strike": China Launches Defense War for Analog Chips], Guancha, September 16, 2025, https://web.archive.org/web/20251112103205/https://www.guancha.cn/xinzhiguancha-suo/2025_09_16_790223.shtml.*

[23] *"如何看待中国政府暂停稀土等出口管制措施" [How Should we View the Chinese Government's Suspension of Export Controls on Rare Earths and Other Commodities?], Yicai, November 8, 2025, https://web.archive.org/web/20251112103351/https://www.yicai.com/news/102902300.html.*

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Microelectronics: The Making of the "Second China Shock"

According to China's own industrial strategists, the nation's model is a **"market-driven but state-commanded"** hybrid model designed for one purpose: dominating global supply chains.[1] It achieves this by first unleashing **ruthless internal competition**, and only then centrally **consolidating the winners**.[2] This represents a calculated shift **from subsidies to strategic investments**[3] and from regional decentralization to a national **"pseudo-Integrated Device Manufacturer (IDM)"** model,[4] ultimately built to secure technological sovereignty and critical choke-point leverage.

> The nation's model is a "market-driven but state-commanded" hybrid model.

The democratic market economies of the West are now confronting the so-called "second China shock". The first one occurred after China's 2001 accession to the World Trade Organization (WTO), when the country rapidly became the world's manufacturing hub, unleashing a massive surge in goods exports that severely disrupted Western manufacturing.

The "second China shock" of the late 2020s is a different beast. Through massive capacity expansion and state subsidies, China has strategically built and reinforced its capacity in high-value-added manufacturing sectors, including electric vehicles, semiconductors, lithium-ion batteries, and solar panels. These high-tech goods have flooded the global market at low prices. And unlike the first shock, this new wave targets higher-level technology domains, posing a broader and more profound challenge.

When Beijing unveiled its "Made in China 2025" industrial strategy a decade ago, with the goal of transforming from the "world's factory" into a "manufacturing superpower", few in the West anticipated its success.[5] Today, China has largely achieved

[1] *Huang Qunhui, "把高质量发展的要求贯穿新型工业化全过程" [Integrating the Requirements of High-Quality Development Throughout the Process of New-Type Industrialization], Institute of Economics, Chinese Academy of Social Sciences (CASS), October 20, 2023, https://archive.ph/ZNRBb.*

[2] *Liu Dian, "美国'黔驴技穷'了" [The United States Has Exhausted Its Tricks], Guanchazhe, January 21, 2025, https://archive.ph/1yG47.*

[3] *"江小涓最新演讲: AI + 金融" [Jiang Xiaojun's Latest Speech: AI + Finance], Economist Circle (Finance Sina), August 8, 2025, https://archive.ph/LReYw.*

[4] *Qin Min and Han Wei, "China Piles $47.5 Billion Into 'Big Fund III' to Boost Chip Development," Caixin Global, May 28, 2024, https://archive.ph/PUYVH.*

[5] *Camille Boullenois, Malcolm Black, and Daniel H. Rosen. "Was Made in China 2025 Successful?," Rhodium Group, May 5, 2025, https://rhg.com/research/was-made-in-china-2025-successful/.*

its objectives, overcoming numerous technological barriers and seizing—or being close to seizing—a dominant position in its targeted strategic industries.

"Let a Hundred Flowers Bloom": Decentralized Policy and Fierce Internal Competition

Although China remains a non-market economy, it is **not the monolithic, top-down planned economy that many in the West mistakenly envision**. Rather, China's economic structure is best described as an industrial-policy-driven, decentralized "state-led system",[6] which has been instrumental to its industrial ascent.[7] The central government sets national development goals and allocates resources, but it leverages regional differences and competition to cultivate "national champions". In turn, **local governments fiercely compete against one another to build complete local supply chains**, vying for supremacy in production volume, investment, and market share.

This pattern is most evident in the semiconductor sector: from Hefei's investment in Nexchip and Wuhan's support for YMTC, to the expansion of Hua Hong Semiconductor in Wuxi—now merging with SMIC to consolidate supply chains and strengthen national champions.[8] **Local governments initially built overlapping chip clusters, resulting in large-scale duplication of foundry and packaging capacity**. Yet this fierce competition also forged a handful of highly competitive firms that survived and became the core of China's industrial integration, reflecting a shift driven by US export controls and global oversupply toward creating stronger, globally competitive players.[9]

> Local governments initially built overlapping chip clusters.

This dynamic creates a **hyper-competitive internal ecosystem**. Chinese enterprises compete intensely for backing at various levels of government, while local governments function as rival funders. A direct consequence of this model is **global "overcapacity"**[10] —an outcome not necessarily desired by the central government, but **an inevitable byproduct of the political and economic incentives driving local stakeholders**.

The most efficient Chinese firms, forged in the crucible of this domestic competition, continuously innovate and drive down costs. This is how national champions like Huawei, Xiaomi, DJI, and BYD survived, thrived, and ultimately became the key players executing the second "China shock" a pattern presented by Liu Dian,[11] from the China Institute of Fudan University, as decisive to systematically outcompete Western rivals in the global market.

[6] *Hu Junchao, Xu Chang and Xiao Lei, "中国战略性制造业产业链供应链安全风险评估及应对举措——以半导体产业为典 型案例" [Risk Assessment and Countermeasures for Supply Chain Security in China's Strategic Manufacturing Industries: A Case Study of the Semiconductor Sector], Social Science Research, July 2025, https://chn.oversea.cnki.net/KCMS/detail/detail.aspx?dbcode=CJFD&dbname=CJFDLAST2025&filename=SHYJ202504002&uniplatform=OVERSEA&v=flX4tMhVMfRA5rEqrUnjxExUNwf1Ow3ko8FOwen%20wPscs9ZUgZ0IAYcX_-Xv611FS.*

[7] *Ming-Yen Ho, "Let a Hundred Flowers Blossom: Local Competition and the Rise of Chinese Semiconductor Capacity," Research Institute for Democracy, Society and Emerging Technology, July 21, 2025, https://dset.tw/en/research/let-a-hundred-flowers-blossom/.*

[8] *Qin Min and Kelsey Cheng, "In Depth: Chip Foundries Kick Off State-Backed Consolidation Drive," Caixin Global, October 30, 2025, https://www.caixinglobal.com/2025-10-30/in-depth-chip-foundries-kick-off-state-backed-consolidation-drive-102377123.html.*

[9] *Ming-Yen Ho, ibid.*

[10] *Rhodium Group, ibid.*

[11] *Liu Dian, "从三大变化看中国"独角兽"突围之路" [China's Unicorn Breakthrough: Three Key Transformations], Global Times, July 22, 2025, https://web.archive.org/web/20251022185359/https://m.huanqiu.com/article/4Nak0eiALgj; Gu Wenjun, "半导体也内卷，如何整治" [The Semiconductor Industry Is also Caught in an Internal Struggle. How to Address it?], Caixin, June 23, 2025, https://web.archive.org/web/20250812193403/https://opinion.caixin.com/2025-06-23/102333389.html.*

From Subsidies to Investment: The World's Most Competitive Non-Market Economy

Another **critical facet of China's industrial policy is the shift of role from subsidizer to investor**.[12] While the United States, Europe, and Japan typically play the role of grant-makers in their industrial policies, Chinese governmental bodies have rapidly evolved into investors. Local governments, in particular, act as venture capitalists, establishing guidance funds to take equity stakes in promising firms. They often delegate the management of these funds to professional VC firms in hubs like Shenzhen and Shanghai, which conduct due diligence and are held accountable for performance—a clear sign of a more market-oriented, albeit state-driven, approach. As Chinese scholars have observed, this "government-guided yet market-operated" model represents a unique hybrid mechanism that aligns policy direction with professional management.[13]

> Local governments act as venture capitalists, establishing guidance funds to take equity stakes in promising firms.

Research indicates that, contrary to the excessive focus of Western observers on Beijing's central "Big Fund", **the capital injected by local governments through various channels is the primary source of funding for Chinese enterprises**.[14] The establishment of the national "Big Fund" in 2014, for instance, did not crowd out local investment; instead, it spurred local governments to co-invest and often increase their funding for sectors or companies targeted by the national fund.

The central government's allocation of resources from large-scale national funds to specific industrial sectors and designated enterprises serves as a benchmark for local governments in their competitive targeting efforts. This dynamic accelerates the intensification of intergovernmental competition. Fundamentally, however, this **process differs from Western governments' industrial revitalization initiatives**, in which subsidies are granted to selected firms within particular sectors.

Simultaneously, **support from the Chinese government extends far beyond capital**. The public sector creates a fertile ground for rapid growth by providing land, talent-attraction incentives, matchmaking firms with customer orders, and even actively removing competitors from the playing field for their favored enterprises. This **model of "holistic state support,"** which transcends mere financial injection, is a system that **would be difficult for any democratic nation to replicate**.

The Pseudo-IDM: From Decentralization to Re-centralization

A more recent and noteworthy phenomenon is China's shift from decentralization toward "re-centralization", fostering the creation of a nationwide "pseudo-Integrated Device Manufacturer" model, a state-directed industrial framework orchestrated by the Chinese government that emulates the structure of a traditional IDM. While decentralization and subsidies fueled innovation and competition, they also led to redundant, inefficient investments and

[12] *Zheng Shilin and Zhang Rongjia, "产业链风险与中国企业自主创新突破" [Industrial Chain Risks and Breakthroughs in Independent Innovation by Chinese Enterprises], Chinese Social Sciences, April 21, 2025, https://web.archive.org/web/20250518192319/https://www.cssn.cn/dkzgxp/202504/t20250421_5869949.shtml.*

[13] *Wei Wei and Xu Mingzhi, "中國政府引導基金的產業政策視角" [An Industrial Policy Perspective on China's Government-Guided Funds], National Association of Financial Market Institutional Investors Research Journal, July 2023, https://www.nafmii.org.cn/yj/jrscyj/qk/2023/20230724/202307/P020230724344497214179.pdf; "'合肥模式''深圳模式''蘇州模式'相繼湧現" [The Emergence of the Hefei, Shenzhen, and Suzhou Models], China Development Institute (Shenzhen), June 2023, https://www.cdi.org.cn/Article/Detail/19388.*

[14] *Ming-Yen Ho, ibid.*

hindered the rapid scaling of national champions intended to dominate critical industrial sectors.[15] In response, China's central government has recently began to **rein in scattered, decentralized industries in favor of consolidation and recentralization**.[16]

Under Beijing's guidance, a new model is emerging where **different national champions collaborate across the semiconductor value chain**—design, fabrication, materials, and packaging—**to mimic the operational logic of a traditional IDM**. The third phase of the national "Big Fund" exemplifies this shift, significantly reducing the participation of local governments to concentrate resources into a smaller number of globally competitive firms, such as Hefei Nexchip, SMIC, Hua Hong Group, and YMTC.[17]

> Different national champions collaborate across the semiconductor value chain to mimic the operational logic of a traditional IDM.

Furthermore, the central government has initiated a **consolidation plan for the semiconductor equipment and materials industries**, aiming to merge hundreds of suppliers into a dozen or so key players to increase industry concentration and accelerate technological breakthroughs.[18] These actions signal a new phase in China's industrial strategy: a transition from dynamic, decentralized competition to a centrally orchestrated, vertically integrated model. The acceleration of the pseudo-IDM model facilitates China's ability to more effectively integrate resources across a range of high-value strategic industrial sectors, thereby **increasing the likelihood of cultivating national champion firms capable of dominating global markets**.

The nurturing of such mega-enterprises that command frontier technological applications is not only an inevitable outcome of China's competition with the West for technological hegemony, but also serves China's **broader objective of accelerating supply chain autonomy**—eliminating Western states' capacity to obstruct China's technological and industrial development through economic statecraft. As China progressively secures dominance in various critical industrial domains, it gains greater leverage over "chokepoint" sectors, enhancing its bargaining power in comprehensive competition with democratic nations.

Moreover, by accelerating the absorption of Western suppliers' technologies and production capacities in advanced manufacturing sectors, **China compels foreign firms to integrate into its state-led industrial ecosystem for the sake of survival**. This constitutes a pragmatic tactic in China's pursuit of supply chain indigenization. The proliferation of the pseudo-IDM model thus exposes Western companies to an escalating risk of absorption and replacement within the Chinese industrial system. Without effective countermeasures by Western governments, **firms across multiple nodes of global supply chains will face an inexorable displacement** by China's state-designated national champions.[19]

> Firms across multiple nodes of global supply chains will face an inexorable displacement.

[15] *Arrian Ebrahimi and Lizzi C. Lee, "China's Chip Problem that Money Can't Solve," The Wire China, April 16, 2025, https://www.thewirechina.com/2025/04/16/chinas-chip-problem-that-money-cant-solve-chip-data-industrial-strategy/.*

[16] *Jeremy Chih-Cheng Chang, Hung-Ta Lin, et al. "The Great Siege: The PRC's Comprehensive Strategy to Dominate Foundational Chips," Research Institute for Democracy, Society and Emerging Technology, April 1, 2025, https://dset.tw/en/research/the-great-siege/.*

[17] *Ming-Yen Ho, ibid.*

[18] *Amy Fan and Levi Li, "China Reportedly Plans Mega-Merger of Chip Toolmakers—From 200 Players to Merely 10," DigiTimes, April 27, 2025, https://www.digitimes.com/news/a20250423PD215/equipment-2024.html.*

[19] *Zheng Shilin and Zhang Rongjia, ibid.*

How to Survive China's Inefficient Yet Effective Strategy

The effectiveness of the Chinese model does not derive from monolithic centralized planning but from a hybrid system that moves fluidly between "decentralized competition" and "centralized reconstruction". While China's strategy of capacity expansion and low-cost exports is not "efficient"[20]—having already trapped international markets in a vicious cycle of falling prices and oversupply[21]—it is **undeniably "effective" at achieving rapid scale and global market dominance**, and it has successfully displaced Western firms that must operate under free market principles and fair competition.

Regionally, this **hybrid strategy is also diffusing across East and Southeast Asia**, consequently leading to a reconfiguration of the semiconductor manufacturing production layout. For instance, in Southeast Asia, existing Outsourced Semiconductor Assembly and Test (OSAT) bases are widening and taking on differentiated roles: Singapore consolidates its role in advanced R&D, selected front-end processing, and packaging pilots; Malaysia integrates large-scale back-end manufacturing while incrementally adding front-end capacity; and Vietnam accelerates late-stage assembly, testing, and emerging wafer capacity. **China is transferring the inefficiencies of its domestic manufacturing industry via three strategies**: surging foreign direct investment (FDI), trade diversion, and targeted technology upgrading. Within this strategy, Chinese actors pursue joint ventures and M&A to localize capabilities.[22]

China reinforces this through strengthened diplomatic cooperation with ASEAN nations. For example, the Beijing-Kuala Lumpur dialogue explicitly names semiconductors, AI, and new energy as priority pillars under "high-quality development", providing a policy umbrella for Chinese firms to extend into Malaysia's ecosystem.[23] Beyond ASEAN, China-Korea relations remain a structured mix of competition and complementarity along the semiconductor chain; research suggests that while the US CHIPS and Science Act is creating short-term relocation pressure on firms, its long-term structural impact may be limited if regional coordination, clustering, and innovation integration continue to advance.[24]

Industry commentary converges on the same trend: **"chip-war" dynamics are re-allocating production toward Asia's downstream and midstream nodes**, positioning East and Southeast Asian hubs to capture this reconfiguration. However, it remains uncertain whether this will enable "Made in China" to move offshore or effectively diversify US manufacturing dependency away from China.[25] A newer variable is the AI "efficiency turn" as open, high-efficiency model architectures reshape demand composition for compute, packaging, and data-center geography —shifting semiconductor demand toward advanced

[20] *Gu Wenjun, "国资如何退出是当下半导体并购的重要问题" [How State-Owned Capital Exits Is a Critical Issue in Semiconductor Mergers and Acquisitions at Present], Caixin, July 2, 2025, https://web.archive.org/web/20251023180707/https://opinion.caixin.com/m/2025-07-02/102337108.html.*

[21] *Chen Jing, "美国想把中国芯片产业'赶尽杀绝', 却给自己制造了最大对手" [The United States Seeks to Entirely Eliminate China's Chip Industry, Only to Create its Greatest Rival in the Process], Guancha, January 3, 2025, https://web.archive.org/web/20250108074941/https://www.guancha.cn/chenjing/2025_01_03_760918.shtml.*

[22] *World Economy and Politics Forum, "中美博弈与东南亚半导体产业发展: 合作现状、受益差异与原因分析" [U.S.–China Competition and the Development of Southeast Asia's Semiconductor Industry: Current Cooperation, Benefit Disparities, and Underlying Causes], ESSRA Forum, July 16, 2025, https://www.essra.org.cn/?news/8128.*

[23] *Ministry of Foreign Affairs of the People's Republic of China, "习近平会见马来西亚总理安瓦尔" [Xi Jinping Meets with Malaysian Prime Minister Anwar Ibrahim], Ministry of Foreign Affairs of the PRC, September 2, 2025, https://www.mfa.gov.cn/zyxw/202509/t20250902_11700665.shtml.*

[24] *Wang Jiachen, Li Yuchao, and Liu Yan, "中韩半导体产业链竞争与合作态势分析——兼论美国《芯片与科学法案》的影响" [Competition and Cooperation in the China–Korea Semiconductor Industry Chain: A Discussion on the Impact of the U.S. CHIPS and Science Act], International Trade Issues 1 (January 2025), https://chn.oversea.cnki.net/KCMS/detail/detail.aspx?dbcode=CJFD&dbname=CJFDLAST2025&filename=GJMY202501004&uniplatform=OVERSEA.*

[25] *Yang Weicong, "'芯片战'与全球半导体生产网络变革对中国与东盟的影响" [The Impact of the 'Chip War' and the Transformation of the Global Semiconductor Production Network on China and ASEAN], Greater Bay Area Review, August 18, 2025, https://web.archive.org/web/20251023181324/https://news.qq.com/rain/a/20250818A06UQS00.*

packaging and heterogeneous compute clusters across Asia, thereby enabling related industries to move offshore.[26, 27]

> "Chip-war" dynamics are re-allocating production toward Asia's downstream and midstream nodes.

Today, in strategic sectors vital to national and economic security, from semiconductors to electric vehicles, from green energy to pharmaceutical technologies, the challenge faced by Western democratic stakeholders stems not only from fierce market competition, but also from fundamental institutional and structural differences that disrupt the playing field. In this contest of systems, democratic nations must respond more proactively with both unilateral regulations and multilateral cooperation.[28]

For the semiconductor sector in particular, this means **complementing export controls with incentives for allied regional co-production**, reinforcing alternative supply routes across East and Southeast Asia to reduce systemic exposure to China's vertically integrated model. Only then can they ensure that democratic values and free-market principles are not defeated in the next wave of technological innovation and industrial competition.

[26] *Yao Xu and Qiu Li, "DeepSeek 引发全球人工智能'技术-市场-政治'冲击波" [DeepSeek and the Global 'Technology–Market–Politics' Shockwave in Artificial Intelligence], Fudan Development Institute—U.S. Observations, February 2, 2025, https://fddi.fudan.edu.cn/f1/9c/c21253a717212/page.htm.*

[27] *Chih-Hua Tseng and Jin Chian Seer, "A Shared Future? Economic Security Challenges from Malaysia–China Economic Cooperation and Data Center Development," Research Institute for Democracy, Society and Emerging Technology (DSET), October 28, 2025, https://dset.tw/en/research/a-shared-future-economic-security-challenges-from-malaysia-china-economic-cooperation-and-data-center-development/.*

[28] *Yang Weicong, "'芯片战'与全球半导体生产网络变革对中国与东盟的影响" [The Impact of the 'Chip War' and the Transformation of the Global Semiconductor Production Network on China and ASEAN], Greater Bay Area Review, August 22, 2025, https://web.archive.org/web/20251023181324/https://news.qq.com/rain/a/20250818A06UQS00.*

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System Thinking and China's Drive in AI Chips

"Kill a thousand enemies, lose eight hundred of your own" (*杀敌一千, 自损八百*) is the vivid Chinese expression for a Pyrrhic victory. Wang Yanxing, Senior Research Fellow at the Chongyang Institute for Financial Studies at Renmin University, uses it to describe US restrictions on the export of AI chips and models.[1] Although the Trump administration is sending contradictory signals about how it will handle semiconductor technology transfer controls toward China, the broader trajectory since Huawei's inclusion on the Commerce Department's Entity List in 2020 has been one of steadily expanding restrictions.[2]

> The Chinese counter-argument is that excessive restrictions only accelerate China's drive to develop domestic alternatives.

Wang Yanxing highlights the absence of consensus within the United States, with critics such as Nvidia and the Semiconductor Industry Association arguing that these measures erode the foundations of technological innovation and weaken US competitiveness. The Chinese counter-argument—echoing similar debates in the West—is that excessive restrictions only accelerate China's drive to develop domestic alternatives, particularly to Nvidia's H20 AI chips. What is undeniable is that **China's push for self-sufficiency in AI chips is intense, well-sourced, and is bound to yield results in the coming years**.

Toward the 15th Five-Year Plan (2026-2030)

Li Xianjun, from the Industrial Economy Department of the Chinese Academy of Social Sciences, offers an in-depth analysis of how the semiconductor industry is likely to be supported under the 15th Five-Year Plan. The plan will set out strategic guidance, priorities, and targets for China's industrial policy, to be further detailed in a series of sector-specific sub-plans.[3] The plan was discussed at the fourth session of the Party's Central Committee in October 2025

[1] *Wang Yanxing, "限制AI芯片对华出口 美国能'限'多久" [How Long Can the U.S. Restrict Exports of AI Chips to China?], Chongyang Institute for Financial Studies, January 1st, 2025, https://web.archive.org/web/20251020071356/http://rdcy.ruc.edu.cn/zw/jszy/wyx/wyxgrzl/7ac6e6393b6f450aada4cf-5d2a859d03.htm.*

[2] *"Addition of Huawei Non-U.S. Affiliates to the Entity List, the Removal of Temporary General License, and Amendments to General Prohibition Three (Foreign-Produced Direct Product Rule)," Federal Register, August 20, 2020, https://www.federalregister.gov/documents/2020/08/20/2020-18213/addition-of-huawei-non-us-affiliates-to-the-entity-list-the-removal-of-temporary-general-license-and.*

[3] *Li Xianjun, "十五五"时期中国集成电路产业创新发展:外部形势、发展趋势与政策选择" [Innovative Development of China's Integrated Circuit Industry During the 15th Five-Year Plan Period: China's Integrated Circuit Industry Innovation and Development During the 15th Five-Year Plan Period], Institute of Industrial Economics of CASS, April 25, 2025, https://web.archive.org/web/20250919223648/http://gjs.cssn.cn/kydt/kydt_kycg/202504/t20250425_5870875.shtml.*

and is scheduled for final adoption in March 2026 by the National People's Congress.[4] Li Xianjun observes that the **Plan will unfold during a pivotal phase of rapid, AI-driven growth**, and expects China's semiconductor industry to continue expanding at a swift pace throughout its implementation. It is uncertain whether his projections represent personal forecasts or strategic objectives already embedded in draft versions of the Plan submitted to the Party's Politburo, but he highlights several likely developments:

- Sales exceeding 2.4 trillion yuan (288 billion euros), from 1,23 trillion in 2023, and chips output projected to surpass 600 billion units, with "strong demand and state support" by 2030;
- Breakthroughs in advanced 3-5 nm and 7-10 nm production lines;
- Full domestic "end-to-end" capability projected for process technologies below 22 nm, through significant progress anticipated in independent development of Equipment, Materials, Software and Electronic Design Automation (EDA) tools;
- Acceleration expected in resolving "chokepoint" issues and advancing "domestic substitution";
- Expansion of international cooperation, particularly with countries in the Global South, and especially participants in the Belt and Road Initiative, as the "de-globalization strategy pursued by the United States and other Western countries reshape the global map of industrial cooperation and specialization".

Li Xianjun calls for a reorientation of China's strategic priorities, arguing that current policies place excessive emphasis on overcoming chokepoints created by US technology transfer restrictions. Instead, he advocates **a broader policy focus on enhancing competitiveness and fostering innovation, with particular priority given to AI chips and high-performance computing**—the latter causing "serious slowdowns" for Chinese AI R&D of applications.[5] He outlines the mix of policies designed to sustain the semiconductor industry's growth, noting that China leverages its position as the world's largest integrated circuits market but remains heavily reliant on supply-side measures. These include the three phases of the "Big Fund", the expansion of capital markets, and efforts to scale up the talent pipeline, exemplified by the 111,000 IC graduates in 2023.

> China leverages its position as the world's largest integrated circuits market but remains heavily reliant on supply-side measures.

Li further highlights growing R&D intensity—2.68 percent of GDP in 2024, approaching OECD average levels (unchanged around 2.7 percent since 2020), but with a much faster growth trajectory[6]—and sustained investment in fundamental research (+10.5 percent in 2024), with leading firms such as Huawei, Tencent, and Alibaba driving innovation. Finally, he stresses China's focus on **supply security**—shaped in part by lessons from semiconductor sanctions on Russia after its invasion of Ukraine—**as a key factor behind the current push to expand mature-node production capacity**, which could lead to 50 percent of global production to be made in China by 2030.[7]

[4] *"China Announces Date for Key Communist Party Meeting to Discuss Next 5-Year Plan," South China Morning Post, September 29, 2025, https://www.scmp.com/news/china/politics/article/3327208/china-announces-date-key-party-meeting-discuss-next-5-year-plan.*

[5] *Bian Hongbo, Lieu Chengyuan, Dong Meishen, "美国对华人工智能领域制裁的溢出效应及中国的反制策略研究" [The Spillover Effects of U.S. Sanctions on China's Artificial Intelligence Sector and China's Counter-Strategy], China Information Security, May 2025, https://web.archive.org/web/20251111083917/https://www.aisixiang.com/data/167211.html.*

[6] *"R&D Spending Growth Slows in OECD, Surges in China; Government Support for Energy and Defence R&D Rises Sharply," OECD, 31 March 2025, https://www.oecd.org/en/data/insights/statistical-releases/2025/03/rd-spending-growth-slows-in-oecd-surges-in-china-government-support-for-energy-and-defence-rd-rises-sharply.html.*

[7] *Jacob Gunter, Alexander Brown, François Chimits, Antonia Hmaidi, Abigaël Vasselier and Max Zenglein, "Beyond Overcapacity: Chinese-Style Modernization and the Clash of Economic Models," MERICS, April 1st, 2025, https://merics.org/en/report/beyond-overcapacity-chinese-style-modernization-and-clash-economic-models.*

A central theme in Li Xianjun's analysis is his emphasis on **"re-globalization to counter de-globalization"** (*再全球化"应对"逆全球化*). He uses this concept to describe a **strategic diversification away from dependence on the United States and the West**, aimed at establishing a distinct "Chinese model" of re-globalization. This model reflects China's geopolitical gameplan, but is not seeking full exclusion of the collective West. Rather, it takes into consideration the strengths of each player, and intends to undermine the construction of a strong coalition competing fiercely with China for dominating semiconductor markets.

> China's strategic objective combines autonomy, supply security, market domination, and selective interdependence.

Li underscores the **leverage created by China's large domestic market as a source for maintaining cooperative ties** with Europe, Japan, and South Korea, and highlights the importance of academic exchanges and collaboration on standards with Europe. He also underscores China's commitment to international innovation cooperation and its proactive role in shaping technological standards, particularly as emerging technologies create new opportunities for standardization. In short, **China's strategic objective combines autonomy, supply security, market domination, and selective interdependence, which distinguishes it from a quest of self-reliance**.

Demand-Side Policies and Shanghai's Leadership

China's ambitions also rely on strong demand-side policies. Li Xianjun notes that the Chinese government creates **"vast demand for semiconductors" using public procurement** in digital government, smart cities and digital infrastructure projects, and acts swiftly to ensure a reduction of dependence on imports from the West in critical sectors such as energy, transport and the financial infrastructure. During the summer, China has required all publicly-owned data centers to source 50 percent of their chips from domestic producers. This was extended to the whole country after the measure was initially adopted by the Shanghai municipality.[8]

An in-depth **analysis of AI chip development in China highlights Shanghai's rising industrial prominence**, driven by its ability to capitalize on the AI revolution.[9] This strength rests on Shanghai's capacity to foster software-hardware collaboration, strategically channel municipal investment funds—such as the Shanghai Guotou Pilot AI Industry Fund—toward AI development, and leverage the city's public infrastructure market to generate demand for AI technologies. Together, these factors position **Shanghai as "supporting half of the rivers and the mountains" (*托起半壁江山*) in China's effort** to seize the opportunities presented by the AI revolution.

System Thinking, Huawei and *Jiepai Xingchen*

The launch of Jiepai Xingchen (*阶跃星辰*), a large multimodal inference model, marked a major milestone in China's AI and semiconductor ecosystem this summer. Its **unveiling coincided with the establishment of the "Model Chip Ecosystem Innovation Alliance"** (*模芯生态创新联盟*) during Shanghai's World AI Conference, bringing together key players in the Chinese semiconductor industry, including Huawei Ascend, MuXi, Biren Technology, Suiyuan Technology, TianShu ZhiXin, WuWen XinQiong, Cambricon, Moore Threads, and SiliconFlow. A Guancha's analysis begins with the observation that **"system thinking"**

[8] *John Martindale, "China Mandates Domestic Firms Source 50% of Chips from Chinese Producers—Beijing Continues to Squeeze Companies over Reliance on Foreign Semiconductors," Tom's Hardware, August 18, 2025, https://www.tomshardware.com/tech-industry/semiconductors/china-mandates-domestic-firms-source-50-percent-of-chips-from-chinese-producers-beijing-continues-to-squeeze-companies-over-reliance-on-foreign-semiconductors.*

[9] *"国产大模型与AI芯片联盟，意义有多重大?" [How Significant Is the Alliance of Domestic Large Models and AI Chips?], Guancha, July 30, 2025, https://web.archive.org/web/20250914121432/https://www.guancha.cn/haoping/2025_07_30_784916.shtml.*

(系统性思维) is a critical comparative advantage in China's industrial development, which underpins the strategic vision behind both Jiepai Xingchen and the alliance.

> "System thinking" (系统性思维) is a critical comparative advantage in China's industrial development.

The paper goes on to emphasize that the so-called **"DeepSeek moment" has "yet to arrive."** DeepSeek's models were trained on Nvidia chips, and its founder admitted in an interview that he had stockpiled tens of thousands of Nvidia GPUs since 2021.[10] China's clear strategic ambition is to "fundamentally solve" this dependence on Nvidia hardware. Huawei is the most important player in this effort, having announced in September a three-year plan to challenge Nvidia.[11] The plan includes doubling production of 910C Ascend chips by 2026 and launching upgraded versions in late 2026. However, the path to catching up with the global leader remains long and difficult: as Bloomberg notes, **Huawei's upcoming models are expected to deliver only 6 percent of the performance of Nvidia's state-of-the-art GPUs**.

One path forward is to **leverage the demand generated by China's domestic AI models**. Treating the model and hardware as a "collaborative system" lies at the core of the new industrial alliance supporting Jiepai Xingchen. A key objective of Jiepai Xingchen is to adapt models to Huawei Ascend chips, which requires redesigning algorithms. While DeepSeek V3 is optimized for Nvidia H800 chips and Alibaba's Qwen for H20 models, Step 3 already aligns with Huawei Ascend 910B. Training models on domestic chips entails **rebuilding the entire toolchain for the process**. Another challenge is scale: large US model companies currently operate GPU clusters of up to 100,000 units, whereas Chinese domestic models still rely on tens of thousands of Nvidia chips.

The analysis also suggests that the era of multimodal models is still in its early stages, as current **multimodal inference models remain immature**. This leaves room for innovation in infrastructure and adaptation of domestic chip architectures, creating an opportunity for Huawei to challenge Nvidia's dominance. This view on the future of innovation aligns with a broader argument often made in China, and highlighted by Li Xianjun in his analysis of the forthcoming Five-Year Plan, that **competing in "More-than-Moore" innovations (创新芯片设计和制造模式的"超越摩尔定律") is less daunting for Chinese industry than competing along Moore's Law**, since all players start from a more level technological playing field. Nonetheless, Taiwan's TSMC in advanced packaging and South Korean firms in High-Bandwidth Memory (HBM) remain far ahead in this area today. Here again, Huawei is on the frontline to catch up with the state of the art and overcome the HBM bottleneck, through its collaboration with Tongfu Electronics and ChangXin Memory Technologies.[12]

> Competing in "More-than-Moore" innovations (创新芯片设计和制造模式的"超越摩尔定律") is less daunting for Chinese industry than competing along Moore's Law.

[10] *Jason Ma, "Meet the Hedge Fund Manager who Founded DeepSeek, the Chinese AI Startup that Began as a Hobby and Is now Laying Waste to U.S. Stocks," Fortune, January 27, 2025, https://fortune.com/2025/01/27/deepseek-founder-liang-wenfeng-hedge-fund-manager-high-flyer-quant-trading/.*

[11] *"Huawei to Double Output of Top AI Chip as Nvidia Wavers in China," Bloomberg, September 29, 2025, https://www.bloomberg.com/news/articles/2025-09-29/huawei-to-double-output-of-top-ai-chip-as-nvidia-wavers-in-china.*

[12] *"Huawei's Chip and Display Suppliers Accelerate China's AI Push," Nikkei Asia, January 24, 2025, https://asia.nikkei.com/business/tech/semiconductors/huawei-s-chip-and-display-suppliers-accelerate-china-s-ai-push.*

An Invariant Strategic Path for China

China has set a clear course for its semiconductor industrial policy—but could it shift if US restrictions were eased? Hao Min, Dean of the School of Law at the University of International Relations and Director of the University's Research Center for Intellectual Property and Technology Security, reviews the shifts in US chip policy toward China during the first half of 2025: the April ban on Nvidia H20 chip sales to China, the May abolition of the Biden administration's AI diffusion list (to be replaced by a new version), and the July announcement permitting H20 chip exports under a specific licensing and export tax regime.[13]

Hao Min predicts that **China's semiconductor industry will follow a development trajectory similar to that of its optical instrument manufacturing**, which was virtually nonexistent in the early years after the founding of the People's Republic of China, with key technologies sold by Western countries at "exorbitant prices". He recounts the story of academician Wang Jiaqi, a leading scientist in the development of optical targeting devices for Chinese-made submarines. During a sea trial, Wang wore a Zhongshan suit, explaining: "If something happens and foreigners recover my body, my clothing will show that I am Chinese. Let them see the spirit of Chinese researchers sacrificing for science, and the determination of China's technological self-strengthening." Today, China awaits the launch of a new two-meter space telescope, which Hao Min calls a "cutting-edge household treasure" (*自己尖端的"家把什"*) in astrophysics.

> China's semiconductor industry will follow a development trajectory similar to that of its optical instrument manufacturing.

Hao Min anticipates a pattern he calls the **"marginal control effect" (*边际管制效应*)**, a term commonly used in Chinese economics and industrial governance to describe the impact of technological controls or restrictions. He argues that US measures are likely to be eased once Chinese technologies achieve near-equivalent performance and comparable cost efficiency. Taken together, the sources analyzed here underscore that **China prioritizes achieving competitiveness, technological advancement, and market dominance** far more than simply gaining access to US and foreign technology. Access or no access, the ultimate goal remains the same—even more so in the quest for AI breakthroughs.

[13] *Hao Min, "中国光学突围历程照见芯片前路" [China's Breakthrough Journey in Optics Illuminates the Path Ahead for Semiconductors], Global Times, July 21, 2025, https://web.archive.org/web/20250726145802/https://opinion.huanqiu.com/article/4NZurgsrjtW.*

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