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BLURRED ORBITS

Inside China's Commercial Space Expansion

CSIS BRIEFS

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EXECUTIVE SUMMARY

To understand the degree to which China is infusing space into its national psyche and society, one need only to look at the country's 2024 New Year's Eve celebrations and the image Beijing projected to the world. As the ball dropped in New York's Times Square and fireworks lit up Sydney Harbor, Chinese dancers performed before a colossal backdrop of taikonauts holding Chinese flags—broadcasting a forward-looking vision of technological ambition and national pride framed firmly within the tenets of the Chinese Communist Party (CCP).[1]

This space vision has been years in the making. In 2013, President Xi Jinping articulated a "space dream . . . to make China stronger." Since then, Beijing has increasingly treated space as a strategic industry tied to economic growth, technological self-sufficiency, military modernization, and geopolitical influence.[2] While the People's Liberation Army (PLA) military space developments and China's human spaceflight ambitions have drawn much of the spotlight, less attention has been directed toward the rapid expansion of the country's commercial space activities.

China's commercial space ambitions are a key but underappreciated driver of its broader global space pursuits.

Figure 1: Performers at a 2024 New Year's Countdown Event in Beijing

Source: NG Han Guan/Asssociated Press

China's commercial space ambitions are a key but underappreciated driver of its broader global space pursuits. Beijing views its expanding commercial space ecosystem—its constellation of startups and venture-backed firms—as instruments of national power, expected to contribute to national strategic objectives, including PLA modernization. These activities are opening a new front in strategic competition that will challenge the United States across economic, technological, military, and diplomatic dimensions. As the U.S. Intelligence Community concluded in 2024, "China's commercial space sector is growing quickly and is on pace to become a major global competitor by 2030."[3]

Figure 2: Wenchang Space Launch Center (Top: July 4, 2021, Bottom: July 26, 2025)

Source: Planet Labs PBC.

China's progress in its commercial space sector and manufacturing base is stunning—in both scale and speed. U.S. policymakers must understand these dynamics now, before the United States finds itself outpaced in sheer industrial capacity and output. Otherwise, commercial space could follow the trajectory of sectors such as 5G telecommunications, shipbuilding, and drones, where China has leveraged scale, state support, and industrial policy to build industrial advantages with significant economic and national security implications.

AN EXPANDING COMMERCIAL FOOTPRINT AND INDUSTRIAL BASE

Since Beijing opened portions of its space industry to private investment in 2014, China's commercial space ecosystem has expanded from fewer than a dozen firms to some 600 today. These companies span space launch, satellite communications (SATCOM), remote sensing, navigation, weather, and emerging areas such as in-space servicing and commercial human spaceflight.

Although many are described as private enterprises—not fully state owned or operated, receiving private or mixed capital, and offering products or services on the open market—in practice they operate within a distinctly Chinese model in which commercial activity remains closely aligned with state priorities. National ministries and provincial governments have incorporated commercial space into development plans, supporting the growth of aerospace cities, technology hubs, research centers, and manufacturing facilities across the country.

Commercial launch and satellite broadband have emerged as the clearest examples of Beijing's ambitions. No less than 10 launch startups have entered the market since 2014 to challenge and complement the state-run Long March rocket monopoly. The state-backed low Earth orbit (LEO) broadband constellation Guowang and commercial systems such as Thousand Sails seek to deploy more than 10,000 satellites each in direct competition with SpaceX's Starlink, with each also providing both economic and military utility. Other areas of commercial growth include space-based remote sensing, where close state ties are enabling the development of systems that rival—and in some cases exceed—the capabilities of U.S. commercial competitors. Chinese firms are also expanding into navigation and weather services, in-space servicing, and commercial human spaceflight.

China is simultaneously building the manufacturing base needed to support this growth, including satellite "gigafactories" and "smart factories." The authors assess that China is currently capable of producing approximately 4,100–5,000 satellites per year, mostly small satellites in the 100–500 kg

Table 1: Summary of Satellite Manufacturing Factories and Production Capacity

Company / Factory	City / Municipality	Production Capacity (annual estimated)
Wenchang Satellite Gigafactory	Wenchang	1,000
Genesat Gesi Aerospace G60 Satellite Digital Factory	Shanghai	300–600
Geespace Satellite MegaFactory	Taizhou	500
GalaxySpace Satellite Smart Factory	Nantong	300
IAMCAS Satellite Innovation Institute*	Shanghai	300
CASIC Wuhan Satellite Industrial Park*	Wuhan	240
CAST Satellite Manufacturing Center*	Tianjin	240
C-Space Aerospace Intelligent Manufacturing Base	Zhuji	200–500
Zhongxing Zhilian Aerospace Technology Satellite	Hangzhou	200
Chang Guang Satellite Aerospace Information Industrial Park	Changchun	100–200
Gongda Satellite R&D and Testing Headquarters Base	Harbin	180
MinoSpace Micro-Nano Starry Sky Satellite Base, MinoSpace Advanced Equipment Manufacturing Laboratory	Wuxi, Beijing	150
Hunan Saidlet Technology Intelligent Production Facility	Zhuzhou	150
MagicCubeSat Intelligent Satellite Manufacturing Center	Chongqing	100
Commsat Satellite Factory	Tangshan	100
Jinan Advanced Satellite Assembly Base	Jinan	20–100
Juntian Aerospace SAR Satellite R&D and Production Base	Wuxi	100
	Total	**4,180–4,960**

Note: *Includes state-owned enterprises (SOEs).

Source: CSIS Aerospace Security Project.

range, across 17 major production facilities, with additional factories under construction (see Table 1).[4] One Chinese trade blog estimates that, as of April 2026, there is a current nationwide production capacity of 4,050 satellites per year across 36 factories, and an additional capacity of 3,310 per year being added, with 16 facilities under construction and 3 planned (bringing total planned capacity to 7,360 satellites per year).[5]

These modern, largely "greenfield" factories that have emerged across the country are sized for producing hundreds to thousands of satellites per year. They employ cutting-edge manufacturing techniques such as digital twin design, robotic assembly, and automotive-style pulsed production methods to enable industrial-scale satellite production.

This growth is being underwritten by a blend of private capital, state-owned enterprises (SOEs), and government funding. That investment model is paired with a deliberate effort to adapt successful U.S. commercial practices. Venture capital managers with Western experience are openly drawing on U.S. business models and innovation incubators. SpaceX has become both a benchmark and catalyst for China's launch startups and satellite broadband ventures, with entrepreneurs emulating the Falcon 9 and Starlink playbook through reusable launch, mass satellite production, vertically integrated operations, and low-cost deployment at scale, all with the hopes of gaining a similar level of success.

Despite this breadth of activity and enthusiasm, China's commercial space sector also faces considerable technical, structural, and market headwinds. Chinese firms continue to confront the complexities of launch development and operations; notably, no commercial launch company has yet successfully recovered and reused a rocket. As companies move into large-scale satellite manufacturing and deployment, some—including Thousand Sails—have experienced delays, on-orbit failures, and quality issues. Beyond these technical hurdles, the rapid expansion of launch firms, satellite manufacturers, and industrial parks also raises risks of fragmentation and overcapacity. The industry remains heavily dependent on state financing and administrative direction, with many firms continuing to struggle with profitability and limited commercial demand outside China. Yet these weaknesses are unlikely to impede China's broader trajectory.

STRATEGIC IMPLICATIONS

The scale and speed of this buildup carry significant implications for U.S. economic and national security interests. China has repeatedly used state-backed industrial policy to establish dominant positions in strategically important industries such as shipbuilding, 5G telecommunications, critical minerals, and green technology manufacturing—often before the United States can mount an effective response. Beijing appears willing to tolerate inefficiency, duplication, and excess capacity if doing so advances long-term strategic objectives. Commercial space increasingly reflects that same industrial model.

China is leveraging its commercial space advancements to construct a broader global information and communications architecture that could reshape digital infrastructure and influence worldwide. Through the Belt and Road Initiative (BRI) and related efforts such as the Space Silk Road, Chinese firms are exporting bundled communications, navigation, remote sensing, and digital infrastructure services—often supported by subsidized pricing, state financing, and turnkey implementation packages—to developing countries across Africa, Latin America, Southeast Asia, and beyond.

Broadband constellations such as Guowang and Thousand Sails are intended not only to compete with SpaceX's Starlink, but also to establish alternative communications ecosystems increasingly outside Western standards and governance frameworks. Although China still faces constraints in profitability, launch maturity, and international trust, the broader trajectory is clear: Beijing is positioning itself to become a dominant global space power capable of shaping the infrastructure, standards, and information flows that underpin economic and geopolitical competition in the decades ahead.

The United States still leads in innovation and scientific excellence. But China's system, for all its constraints, is engineered for speed, scale, and cohesion. Prevailing measures of space power—such as launch totals and satellite counts—are often lagging indicators and may fail to capture the industrial foundations now being built across China. The facilities, industrial clusters, financing patterns, and manufacturing capacity examined in this report provide early indicators of Beijing's long-term trajectory. If current trends continue, China could narrow the gap with the United States not because it invents more, but because it follows fast and builds faster: marshaling its industrial base, capital, and political system behind a single vision to become the world's leading space power. ■

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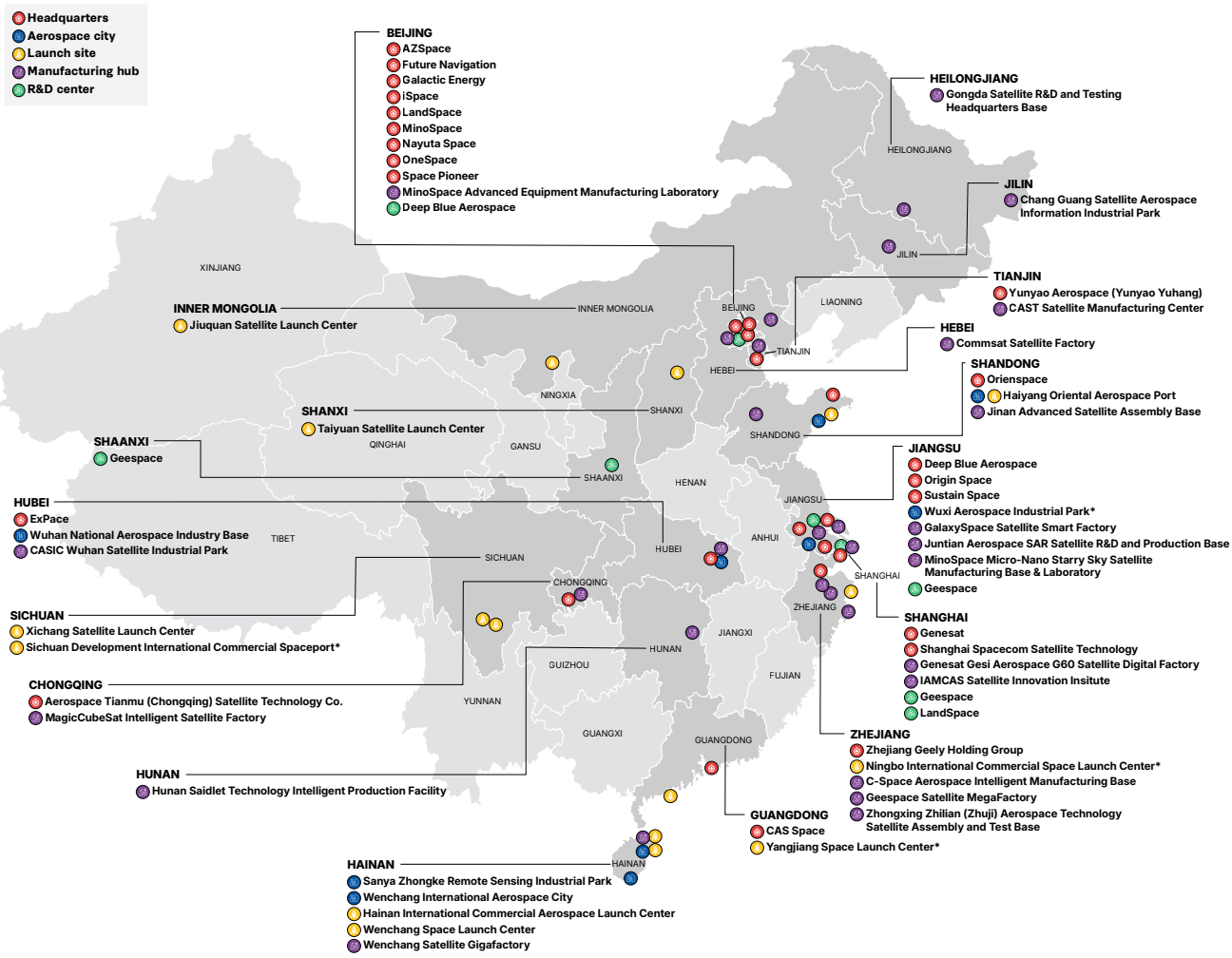
Figure 3: China's Commercial Space Footprint



Note: *In development

Source: CSIS Aerospace Security Project.

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ENDNOTES

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3. Office of the Director of National Intelligence, *Annual Threat Assessment of the U.S. Intelligence Community* (Washington, DC: Office of the Director of National Intelligence, 2024), 11, https://www.dni.gov/files/ODNI/documents/assessments/ATA-2024-Unclassified-Report.pdf.
4. Note that reported manufacturing capacity figures warrant careful interpretation, as publicly available information on the status of production facilities remains limited and manufacturing rates vary substantially according to satellite size and complexity.
5. WeChat, details redacted to protect source material.