

Meeting China's Space Challenge

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KEY TAKEAWAYS

The PRC clearly recognizes that outer space will be a key domain in its long-term competition with the United States.

Whether American policymakers recognize this challenge and can respond to it effectively remains to be seen.

To secure its interests, both terrestrially and in space, the U.S. needs to sustain its own governmental and commercial space efforts.

The United States faces its greatest space competitor since the dawn of the Space Age in the form of the People's Republic of China (PRC). In order to secure its interests, both terrestrially and in space, the U.S. needs to sustain its own space efforts, both governmental and commercial, while recognizing the growing competition from China.

Since the beginning of the Space Age, the Chinese Communist Party (CCP) has been intent on making China a space powerhouse. China's leaders recognize that space is a key domain for international competition and involves not only national prestige, but also economic and financial activity, science and technology, and national security. The most recent Chinese space white paper, "China's Space Program: A 2021 Perspective," lays out China's space plans for the next

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five years.¹ From the variety of programs and initiatives covered, it is clear that China is intensifying its efforts to be the leading space power.

Ambitious Goals and Major Projects

According to this new space white paper, China is setting an extensive range of ambitious goals that span the gamut of space-related projects from new launch vehicles to expanded space services. Major projects listed in the white paper include:

New Launch Vehicles. This will include a heavy launch rocket (probably for a crewed mission to the Moon) as well as a reusable launcher.

New Satellite Constellations. The white paper indicates that in the next five years, Beijing will deploy a new satellite data relay system and a new position, navigation, and timing (PNT) constellation, which may integrate communications functions as well. PNT constellations, like the American GPS, provide a range of services that not only help navigation, but also support telecommunications, pipeline and power grid operations, and financial transactions.

Additional Space Services. The new PNT constellation is clearly intended to attract more users globally to the Chinese system than to the American GPS constellation. Strikingly, China completed the Beidou PNT network only recently. Other Chinese goals include providing synthetic aperture radar coverage and commercial space launch facilities.

Alternative Approaches to Space Governance. A major Chinese initiative is “China Standard 2035.” The goal is to ensure that global standards are compatible with Chinese products so that Chinese products cannot be excluded from any nation’s markets. Equally important, through manipulation of governance structures, competitors can be disadvantaged. Not surprisingly, China is looking to help set standards for aerospace products and services including debris monitoring and space traffic management.

Space Innovation. The white paper also highlights Chinese interest in space innovation. This includes building an intersatellite network to allow satellites in different orbits to communicate with each other as well as to monitor other satellites. It also declares that China will try to undertake a sample retrieval mission from Mars. If it succeeds, Beijing will have accomplished something no other nation has done before—much as it was the first nation to land a probe on the far side of the Moon.

It is important to recognize that these white papers are the product of a bureaucratic consensus and coordinated with China’s Five-Year Plans. Consequently, projects listed in the white papers are part of the larger economic and political goals established in those Five-Year Plans.

PLA and Belt and Road Initiative

Notably, the white paper's goals were laid out as the Chinese People's Liberation Army (PLA) was granted a 7.5 percent increase in its budget for 2022.² While the space white paper does not discuss China's military space programs, the reality is that much of China's space program occurs within the context of the PLA. The PLA manages China's entire space infrastructure, and key projects are headed by active-duty PLA officers. The Chinese human spaceflight program, for example, is headed by General Li Shangfu, who is also head of the Equipment Development Department and a member of the PLA Central Military Commission.

Equally important, China's defense budget in 2022 will be rising faster than the expected economic growth rate. The Chinese National People's Congress projected a general economic growth rate of only 5.5 percent, which has subsequently been scaled back to 5.0 percent.³ This is one of the few times when the defense budget will grow faster than the economy. Given China's ambitious space goals, spending on space-related projects is likely to contribute to the defense budget's accelerated growth.

Meanwhile, Beijing openly discusses the concept of a "Space Silk Road" where Chinese space capabilities will be employed to support Chinese-built infrastructure under the Belt and Road Initiative (BRI).⁴ This will likely take the form of incorporating and embedding Chinese PNT systems into various terrestrial BRI projects rather than developing some kind of military relationship involving PLA space capabilities. Insofar as Chinese-constructed pipelines, power grids, and telecommunications networks rely on Beidou or a successor Chinese system, recipient countries may find it almost impossible to separate themselves from the PRC, no matter what changes in government or relationships may occur.

What the Administration and Congress Should Do

The comprehensive PRC's approach to foreign policy, which incorporates economic, technological, and military elements, is embodied in its space policies. Chinese dominance in space will translate into leverage for terrestrial purposes. Given the growing centrality of space for terrestrial political and economic activities, it is essential that the United States retain a preeminent position in space. At the same time, it is vital to recognize that China's space ambitions, as reflected in the goals laid out in the space white paper, mean that the United States and the PRC will increasingly be competing in the heavens as they are on Earth.

With these considerations in mind, the United States should:

- **Support commercial development of space capabilities.** Perhaps nothing reflects the ability of free people and free enterprise to develop and innovate more than the American commercial space sector does. Over the past decade, American entrepreneurs like Elon Musk and Jeff Bezos have helped to revitalize the entire global space enterprise. Costs to launch have dropped, and new services have become available. The potential strategic impact of satellite-based Internet, for example, has been on display in Ukraine. But commercial development can occur only where government reduces barriers to entry, whether in terms of excessive regulation or prohibitive tax policies.

In a bipartisan move, both the chairman and ranking member of the House Committee on Science, Space, and Technology have called upon the Biden Administration to halt its efforts to have the National Transportation Safety Board (NTSB) impose an additional set of oversight requirements on space launches.⁵ The NTSB effort is of questionable legality, is detrimental to the ongoing space renaissance, and duplicates the role of the Federal Aviation Administration, which already has responsibility for space traffic management. The Biden Administration should withdraw these proposed changes.

- **Support programmatic and funding stability.** NASA has commissioned a large number of plans to return to the Moon ever since Apollo 17's flight in 1972, the last human mission to the Moon. Yet 50 years later, the United States still has not sent a crew back to our nearest celestial neighbor. Worse, the expectation of a return to the Moon by 2024 has been delayed to 2025 or beyond.⁶ Time and again, studies have been undertaken and programs initiated, only to be cancelled or modified by subsequent Administrations. Nor has Congress supported such efforts through financial stability. The same has been true for weather satellites and other space programs, many of which are of direct benefit to terrestrial activities. If the United States is going to sustain its leadership in space, it can do so only through sustained, persistent support in terms of space funding (including redirecting funds from redundant or eliminated programs). This is one area in which China arguably has done a far better job.

Congress should consider adopting longer-term planning and budgetary horizons modeled after successful efforts in other parts of the government. For example, multi-year buys of space launch vehicles, satellites, or even long-lead items (as occurred with aircraft carriers) have stabilized both the work force and supply chains by providing a predictable series of purchases.

- **Deepen the U.S. Space Force’s thinking.** The National Defense Authorization Act for Fiscal Year 2023 includes a major increase in U.S. Space Force funding with an additional \$7 billion authorized.⁷ This is good news from a technological perspective, since much of the funding is slated for expanded research and development functions. But the U.S. Space Force remains uncertain about how to think strategically about space. In particular, the need for both defensive and offensive space capabilities is recognized, but the U.S. Space Force’s strategic role is not yet fully understood. This is not a matter of the National Space Strategy, which is expected sometime this year; rather, it reflects the need for a clearer conception of how space is both similar to and different from other domains (land, sea, and air) as a theater of war. Ironically, while many have suggested that the Russia–Ukraine war will offer important lessons in such new areas as drone and cyber operations, what it might have to offer space strategists is far less clear.

Congress should consider reserving some of the additional funding to support careful studies by both traditional and unconventional thinkers in a space environment within which it is clear that not only China, but also Russia, France, the U.K., India, Japan, South Korea, and a host of other countries are likely to field dedicated space forces.

Conclusion

The United States is engaged in a long-term competition with the People’s Republic of China that includes political, technological, economic, and military elements. The PRC clearly recognizes that outer space will be a key domain in this competition, and its most recent space white paper issues the challenge. Whether American policymakers recognize that challenge and can respond to it effectively remains to be seen.

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Endnotes

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