



We Are in a New Space Race, and America Needs to Win

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The Trump administration is getting serious about space. Although they have been mocked by critics ignorant of their importance, steps like the administration's commissioning of the U.S. Space Force, its establishment of a dedicated Space Command and the creation of a dedicated space technology development arm are all signs that the White House is beginning to view space as a new arena of strategic competition. The latest sign in this regard came last month, when the Pentagon formally released its Defense Space Strategy, which defines the space domain as "vital to our nation's security, prosperity and scientific achievement."

This bold statement reflects a potentially transformative reality: that space is still a largely untapped resource. Today, the current space market is estimated to be \$350 billion, but in three decades, it could be worth exponentially more. By the middle of the 21st century, both Bank of America and Merrill Lynch estimate, the space economy will be worth roughly \$2.7 trillion.

American policymakers are eager to tap into that potential wealth. U.S. Commerce Secretary Wilbur Ross gave a speech earlier this year at the World Economic Forum in Davos in which he noted that, "Current industry projections place the 2040 global space economy at between \$1 trillion and \$3 trillion. And I think we will certainly get to a trillion before 2030." He specifically mentioned America's near-term priorities in this domain to include lunar mining, asteroid mining and space tourism.

Industry, meanwhile, is already moving in this direction. American private sector space firms have reduced launch costs, making the positioning of technologies in space more feasible and affordable than ever before. Meanwhile, new technological breakthroughs have made activities like mining asteroids achievable within a decade.

But all of that hinges upon investor confidence, and that in turn requires security. For the space economy to expand to its full potential, tech firms and investors alike need to know that their stakes will be safeguarded by a U.S. government that is serious about space. Increasingly, American national security, and our growing list of space-based economic assets, requires a committed military presence with the capability to defend against dangerous naturally occurring phenomena (including asteroids and comets), as well as potential adversaries who are actively developing the means to disrupt, degrade and destroy vital components of the emerging U.S. space architecture.

Here, the biggest danger is undoubtedly the People's Republic of China (PRC). Beijing has reached much the same calculus as has the United States about the promise of the space domain, and is now trying in earnest to utilize space to achieve its great power ambitions.

The extent of the PRC's space ambitions was publicly outlined last spring by one of the country's leading experts on the subject. In April 2019 testimony before the U.S.-China Economic & Security Review Commission, Dr. Namrata Goswami laid out that the goal of Chinese leaders is for their country to become the world's leading space power by 2045. They have already completed several steps toward this objective, including landing on the far side of the moon and successfully simulating a lunar biosphere with inhabitants supported by a closed ecosystem for the period of a year, including observed mouse embryos growing in space (thereby demonstrating the likelihood of human reproduction in that domain). China's space roadmap, moreover, entails developing techniques for asteroid mining, creation of nuclear-powered shuttles for space exploration and industrialization of the moon to fabricate satellites that can harness energy in space—potentially positioning the PRC to become Earth's top supplier of non-carbon producing energy.

China, moreover, has already formulated concrete goals for space-related markets, among them: space-based commercial and industrial facilities (2021+), space-based power generation (2030+), lunar mining (2030+), asteroid mining (2032+) and the advanced space transportation required. As it proceeds toward these objectives, the PRC could also gain advantages in other areas, such as artificial intelligence and cyber-related technologies, thereby increasing its war-fighting capabilities and telecommunications prowess.

China's space strategy, then, should properly be seen from a great power perspective. The strategic role in space to which Beijing aspires is potentially threatening to the United States, both economically and militarily. In order to compete successfully against it, the United States will need to go on the strategic offensive. America now needs a concrete plan to cement its position as the planet's dominant space power. Without one, we will cede the advantage to Beijing in what is quickly emerging as the next great economic, military and political domain.

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