Mining the Heavens: Why Space Needs Private Ownership

By Rainer Zitelmann April 24, 2026

NASA Hubble

Beyond Earth, there are abundant resources on the Moon and, more significantly, on asteroids. The asteroid belt between Mars and Jupiter alone is estimated to contain between 700,000 and 1,700,000 asteroids with diameters of at least 0.6 miles. In addition, there are over 30,000 known near-Earth asteroids (NEAs), and about 2,000 to 3,000 more are discovered each year.

Is asteroid mining even economically viable? There is even a dedicated website that lists the purported values of numerous asteroids – and a search for “most valuable” reveals countless entries with values exceeding 100 trillion US dollars. But if valuable metals such as platinum flooded the market in such quantities, the price would of course immediately fall dramatically. Nonetheless, it is widely acknowledged that certain asteroids contain valuable raw materials, such as platinum group metals (PGMs), in concentrations significantly higher than those found on Earth.

A common objection to asteroid mining is that it would cost too much to transport raw materials from an asteroid to Earth, rendering mining economically unviable. But the assumption that the primary purpose of extracting raw materials from asteroids is to bring them back to Earth, is wrong. While this may be the case for extremely valuable materials like rare earths, the majority of raw materials will actually be utilized for production in space.

Even with further potential reductions in launch costs from Earth, it will often be more cost-effective to utilize raw materials obtained from asteroids in-situ. In years to come, space-based production will play a significant role. Why should we transport raw materials from Earth into space when ample resources are available on planets, moons, and asteroids?

But is there a legal basis for such activities? If not, nobody will do it. The Outer Space Treaty of 1967, ratified by 116 nations, prohibits in Article II the ownership of “celestial bodies” by nations. Whether this also applies to private individuals or companies is disputed among space law scholars.

In April 2020, Donald Trump signed an “Executive Order on Encouraging International Support for the Recovery and Use of Space Resources.” This Executive Order was followed just one month later by NASA announcing the “Artemis Accords,” officially “Principles for cooperation in the civil exploration and use of the Moon, Mars, Comets and Asteroids for Peaceful Purposes.” One key element of the Accords, which have since been signed by 60 countries, is the introduction of what are referred to as “safety zones” – geographically defined areas around a station or activity on the Moon or another celestial body. These zones are not intended to contradict territorial appropriation, but rather to serve the practical implementation of the principle of peaceful use and to prevent potential conflicts arising from activities that are too close to one another.

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Section 10 of the Accords explicitly states: "The Signatories affirm that the extraction of space resources does not inherently constitute national appropriation under Article II of the Outer Space Treaty, and that contracts and other legal instruments relating to space resources should be consistent with that Treaty."

While the Artemis Accords were a step forward, the language suggesting that space mining does "not inherently" violate Article II – which prohibits "national appropriation" – has again created ambiguity, as space law scholars Michael Byers and Aaron Boley point out: "Is Space mining sometimes 'national appropriation' and sometimes not?....Can a term such as 'national appropriation,' which has no 'ordinary meaning' because it is not used outside the Outer Space Treaty, 'inherently' mean anything?"

So, who should have the right to acquire property in space? My answer: Those who have the financial means to get there, develop, and use the land—and who are willing to take on the immense risk. Who else? As far as asteroids are concerned, at least in the case of smaller celestial bodies, ownership should belong to those capable of mining and extracting resources such as water and platinum.

The best option would probably be to list the entire asteroid on the stock exchange as a real estate investment trust (REIT), which would fund mining operations and enable shareholders to receive dividends from the extraction of raw materials. Even before a single dollar was earned, or a single penny in dividends could be paid out, this would allow a market for trading in such stocks to develop.

While this is all just a thought experiment, it illustrates the direction things would need to go in. Whether these ideas are realistic or if different concepts will prevail is something no one can know today. One thing, however, is absolutely clear: as long as there is no legal certainty for investors, they will not invest. And on Earth, private property is the foundation of every functioning economic system—why should it be any different in space?

In June, Skyhorse Publishing will release Rainer Zitelmann's book "New Space Capitalism."