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OPINION

Could Capitalist Space Travel Solve Many of the Problems on Earth?



Rainer Zitelmann

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What may sound like a fairy tale today could be a reality tomorrow. Capitalist space travel can solve many of the problems on Earth, such as limited raw materials and energy production. A host of companies are already working on it.

Elon Musk recognized the potentials of space travel in 2003: “I like to be involved in things that change the world. The Internet did, and space will probably be more responsible for changing the world than anything else.” But even ten years later, in 2013, there was close to zero private activity or investment in the Space Economy outside of Space X, Musk’s company. The space economy is now seen as “Wall Street’s next trillion-dollar industry” (CNBC), while Bank of America predicts that “the growing space economy will more than triple in size in the next decade to become a \$1.4 trillion market.” And Morgan Stanley expects a space-based business to create the world’s first trillionaire.

In 2016, Amazon founder Jeff Bezos predicted: “I think that over the next few hundred years we need to move our heavy industry off-planet. Our Earth will be zoned residential and light industrial. And that just makes a lot of sense! You shouldn’t be doing heavy industry on Earth. Resources are more plentiful in space. We can build gigantic chip factories in space, and then just send the little bits down. We don’t actually need to build them here.”

It sounds like science fiction, but in recent years a gigantic private space industry has developed that is much more efficient than traditional government-funded and organized space travel. The public already knows the names of billionaires such as Jeff Bezos (Blue Origin), Elon Musk (Space X) and Richard Branson (Virgin Galactic), but there are hundreds of other players in the capitalist space industry worldwide that only insiders have heard of.

One example: satellites used to be spacecraft weighing several tons, which required a large budget, a lot of time and a great deal of expertise. Just ten years ago, only a few microsatellites and CubeSats were launched; today, well over 1,000 satellites are being launched into orbit each year. A CubeSat is a small satellite consisting of one or more cube-shaped modules, each with a side length of just under 4 inches (10 cm). These spacecraft are not only small, but also very light: one unit has a mass of no more than 4.4 lbs. (2 kg).

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Asteroids could be a key source of raw materials in the future. One example is the asteroid Psyche in the asteroid belt between Mars and Jupiter. Depending on its current position in its orbit around the sun, it is between 235 million to 309 million miles (378 million to 497 million

kilometers) away from the sun. The asteroid consists mainly of nickel and iron. With a diameter of 235 kilometers, it alone – based on the current annual consumption of these two metals – could supply the Earth’s entire needs for more than ten million years. And Psyche is just one of around 1.5 million asteroids with a diameter of more than one kilometer in orbit in the asteroid belt between Mars and Jupiter.

The statement, “The Earth’s resources are finite and therefore endless growth is impossible” seems plausible at first glance, but is wrong for many reasons. Not only because resources have been used more and more efficiently thanks to capitalism and higher growth today does not necessarily mean more resources are consumed, but also because there is no reason to assume that humanity will limit itself to the Earth’s resources in the future.

And what about energy? Does the solution to humanity’s problems lie in degrowth and, as anti-capitalists suggest, in the introduction of a centralized, state-run, planned economy? Or will technological innovations harnessed by entrepreneurs solve our problems?

The European Space Agency (ESA) [reports](#):

“Decades of research has led to a diversity of concepts using different forms of power generation, conversion and transmission principles. The so-called reference design transforms solar power into electricity via photovoltaic cells in geostationary orbit around Earth. The power is then transmitted wirelessly in the form of microwaves at 2.45 GHz to dedicated receiver stations on Earth, called ‘rectennas,’ which convert the energy back into electricity and feed it into the local grid.

“Because the power is transferred wirelessly it will be possible to transfer it to receiver stations where it is required, even to the Moon or other planets, where a readily available energy supply will boost our ability to explore these locations.”

Generating energy via solar power plants in Earth orbit that send their generated energy to Earth using microwave radiation is not science fiction, it is a project that many companies and countries are working on at full speed, including the United States, Australia, the UK, India and South Korea, as well as China. And there is no night in space; solar energy is available round the clock, 365 days a year.

The rockets needed to launch space stations, satellites, solar power plants, etc. into space are becoming cheaper and cheaper thanks to the development of capitalist space travel. Elon Musk's starships are not only much more powerful than the old NASA rockets, they are also much cheaper. Above all, they are not single-use "disposable" rockets, they are reusable.

Many people take a critical view of space tourism, dismissing it as a handful of super-rich individuals indulging in an expensive hobby only they can afford that also happens to be harmful to the climate. The truth is, as with all innovations, new products are initially only available to the rich and super-rich, who finance the high development costs. In principle, the same could be said of cars in the past. But space tourism is just what dominates the headlines. The real issue is to make the infinite deposits of raw materials on other moons, planets and asteroids available to mankind and to find solutions to our energy problems that do not harm the environment on Earth. As always, the solution to mankind's major problems lies not in ever tighter government regulations and prohibitions, but in the imagination and creativity of entrepreneurs, which only capitalism makes possible.

Rainer Zitelmann is the author of the book *In Defense of Capitalism* <https://in-defense-of-capitalism.com/>