

Our Future in Space Will Echo Our Future on Earth

Abraham Loeb

The future of our civilization in space will depend on whether our society will endure the space enabling technologies on Earth.

By Abraham Loeb on December 15, 2018

Given that the half-century-old technology embodied in [Voyager 1 and 2](#) has recently traversed the boundary between the solar wind and the interstellar medium, it is [likely](#) that within the next century our civilization will exit the Solar System boundary, marked by the Oort cloud, a thousand times farther. Venturing into interstellar space will signal our transition from a Sun-based residence to the grander neighborhood of other stars in the Milky Way galaxy. And there may be alien traffic out there.

There is no doubt that we will ultimately be forced to relocate as a result of a major catastrophe on Earth, such as the Sun boiling off the oceans in less than a billion years, [a giant asteroid impact](#) within hundreds of millions of years, a technologically induced climate change within thousands of years, or a global nuclear war within hundreds of years. The only uncertainty is the timescale over which such a move will be forced upon us.

On October 19, 2017, we discovered the first interstellar object in the Solar System, 'Oumuamua. As I argued in [recent papers](#), 'Oumuamua could possibly be [a message in a bottle](#) from another civilization swept to our Solar System shore. Over the next century, we will likely develop the ability to send technological bottles to the shores of other planetary systems.

Such spacecrafts might include robots equipped with 3D printers, allowing them to use the raw materials they scoop elsewhere in making artificial objects based on blueprints from their home planet, the Earth. We could also populate these spacecrafts with tiny astronauts in the form of microbes that will establish colonies of life elsewhere. Artificial seeding of life-as-we-know-it would constitute [“directed panspermia”](#).

But long before we accomplish these goals in space, our society on Earth will likely be transformed by the same technological advances that will enable these space missions.

Consider, for example, robots. The next major revolution in the structure of human societies on Earth will likely result from [robots replacing human labor](#). Robots are already starting to replace humans in [construction](#) sites and their share (combined with artificial intelligence) in the labor market will grow rapidly, as their development will improve exponentially on a timescale of a few years. Given these technological

advances, humans will need to restructure society. With less work to do thanks to robots and computers, there will be less opportunity to earn money as a reward for labor. The average work load will shrink. This will lead to more vacation time and less work for hire. Governments may contemplate paying their citizens an income floor that is unrelated to the work performed in the job market. Such an arrangement would constitute a new form of socialism: “everyone gets more than the minimum they need, and do whatever they want in their spare time”.

The seeds for this societal transformation are already apparent in Silicon Valley, where multi-trillion dollar [wealth](#) was created over the past decade out of computer and internet technologies. This new wealth is very different from traditional wealth which was generated over a longer period of time by older people who had traditional roots. Sergey Brin, Steve Jobs, Larry Page or Mark Zuckerberg have little in common with the old money of the Roosevelts, the Forbes, the Du Ponts or the Rothschilds.

Rapidly growing technologies are already encountering some pushback through the nostalgia for the old world order in populist political movements. But so far our civilization demonstrated a tendency towards a more advanced technological future. We could also be inspired to move in that direction by detecting signals from a more advanced alien civilization and realizing that we are not the “smartest kid on the block”.

Here’s hoping that our future economy and societal structure will adjust successfully to the new technological advances. Our challenges in space will build upon our successful management of the preceding societal challenges on Earth without triggering catastrophes or pushback instabilities. If we can endure the technological revolution of computers and robots, we might conquer the Milky Way galaxy. If not, then our unfortunate societal future on Earth will provide a sober explanation to Fermi’s century-old paradox: [“where is everybody?”](#)

ABOUT THE AUTHOR



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Credit: Nick Higgins

