

Deep space mine

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An artist's impression of an asteroid breaking up. Credit: NASA/JPL-Caltech

Many resources essential to the technology on which we depend are dwindling or are increasingly inaccessible to certain nations for geopolitical reasons. A case in point is that several of the rare metallic elements that are needed to construct the components of modern electronic devices such as smartphones and tablet PCs, fuel cells,

rechargeable batteries, photovoltaic systems, and other technology are by definition low in abundance.

Moreover, such elements are often critical in the design of such devices and there are no synthetic alternatives as there might be if one were to substitute for other [natural materials](#) such as wood, where organic polymers might do the job just as well, if not better.

With this in mind, research published in the *International Journal of Technology Management* discusses the issue of whether we might undertake mining operations on an asteroid that comes into the Earth's purview.

José Antonio Peña-Ramos of the Universidad Autónoma de Chile and the Universidad de Granada, Spain, and Fernando Rafael Ramírez-de Luis

of the Universidad Pablo de Olavide, in Seville, Spain, ask whether the "scramble for space is a realistic possibility in the short-term or whether it is another dystopian exaggeration doomed to oblivion."

They look at the current state-of-the-art technology that would be needed to putatively mine an asteroid and point out that it is far too immature to be at all viable. They discuss whether there is adequate regulation in this notional industry, and of course, there isn't, with some states suggesting it should be a unilateral decision and others looking for [international rules](#) and regulations. There are also many who might be involved and large amounts of money to be made and so the stakes will inevitably be high and given our track record when it comes to land grabs and goldrushes, space mining may well lead to serious conflict between the corporations and inevitably the nation states involved in such endeavors.

More information: José Antonio Peña Ramos et al. Resources in space and asteroid mining: where we are and which challenges should be

expected, *International Journal of Technology Management* (2020). [DOI: 10.1504/IJTM.2020.108980](https://doi.org/10.1504/IJTM.2020.108980)

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