

# Understanding Corporate Strategy in the New Space Era: Perspectives on Space Debris

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## 1 Introduction & Background

The situation of a growing population of space debris in Low Earth Orbit (LEO) threatening the usability of these crucial orbits to many civil, military, private and public use cases has been widely discussed in academic literature and public reportings (ESA ESOC, 2022; Kessler & Cour-Palais, 1978; Rouillon, 2020). However, the creation of space debris does not take place in a deterministic notion but is socially shaped. After all, how much space debris is created depends on socioeconomic factors, which have thus far been understudied. This paper aims to investigate the dynamics between space debris creation and corporate strategy specifically.

To analyze the dynamics between the two spheres it is first important to outline their interrelatedness. In recent years we have observed a stark increase in commercial space activity which has on the one hand driven down and was simultaneously caused by decreasing costs to launch (ESA ESOC, 2022). According to ESA's Space Debris Office, the number of objects launched into space has increased from around 400 in 2019 to more than 1200 in 2020, and almost 1800 in 2021 (ESA ESOC, 2022). Assuming correlation between objects launched to space and debris creation, it becomes obvious how corporate strategy influences the latter. Under investigation in this study is whether this relationship is true vice versa. The question hence is whether the evolving space debris situation in LEO influences corporate strategy in any way. To investigate this question, it is first important to detail underlying assumptions.

Similar to environmental pollution on earth, in space too, pollution is an economic externality - made possible by a lack of monetary value placed upon a "clean space". Orbits are for the purpose of this study defined as 'common pool resources' as non-excludability of the good is given, yet the goods are rivalrous – if a satellite is placed in a certain orbit, that particular spot can not be used by other actors (Salter, 2015).

For various kinds of public goods on earth, especially in a scenario without much environmental regulation, we have seen the natural environment degrading (Hardin, 1968; Niggol Seo, 2020; Ostrom, 2008). Is the tragedy of the commons also true for space? As described above, non-excludability and rivalry most certainly provide an economic incentive to prioritize short-term gains over long term benefits. However, the

Kessler syndrome unambiguously threatens the usability of space, the awareness of which might serve as an incentive to behave environmentally responsible. If so, the relationship between space debris and corporate strategy would be mutually influential.

## 2 Research

To accommodate the explorative end of the study, nine semi-structured interviews were conducted in the first half of 2022. The targeted group of experts were business executives in the space industry, most of whom have influence over decision making processes in their respective companies, as well as industry associations and relevant institutional bodies. In the analysis section of this paper, common themes from the interviews are identified and interpreted. The interviews showed that, first, the European New Space sector is aware of the problems arising through space debris, though the degree to which companies perceive space debris as an imminent problem varies and concrete and effective action is lacking. Secondly, interviewees stated that this lack of action is in certain areas of the industry linked to a lack of demand (e.g. it being cheaper to risk the loss of a satellite than actively clearing up an orbit). Thirdly, some New Space companies use efforts to deal with space debris as a unique selling point.

## 3 Conclusion and Takeaways

The findings of this study depict an awareness of the space debris problem within the European New Space sector. It was established that some companies have adopted strategies in response to the space debris situation. The relationship between space debris and corporate strategy can hence be described as mutually influential.

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