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## PROPOSAL FOR A LEGAL DEFINITION OF SPACE DEBRIS

**Abstract**

Wherever humans go, pollution follows. Outer space is no exception. After 60 years of space missions, the orbits around Earth are filled with “space debris”, which are residual materials of satellites, rockets and other space objects launched beyond the atmosphere. Due to their number and their orbital speed, they pose various problems to satellite operators, such as frequent avoiding maneuvers, risk of catastrophic collisions, liability claims and interference with ordinary operations. To solve these issues, the international community has been working on means to remove them through so-called ‘Active Debris Removal’ (ADR) operations. However, the latter pose different regulatory challenges: they require a clear understanding of the jurisdiction, control and ownership over space debris, together with the consequences in terms of liability during and after operations. All these issues have yet to find an accepted solution at the international level, hindering – in the meantime – the feasibility of ADR activities. The present paper examines these challenges bringing the focus on the fundamental concept behind them: the legal definition of “space debris”. Various notions have been suggested by different international subjects (e.g. IADC, ISO, EU), looking at the non-functionality of the debris, in conjunction with, or replaced by, the feature of it being useless, non-maneuvrable, inactive, or not being under control. They did not, however, provide enough answers to the questions on ADR, which remains subject to an unclear and uncertain legal framework. The author, therefore, explores the possibility of using a different approach: defining “space debris” like “waste” is defined on Earth, especially in the context of the European Union. In particular, the definition that this paper proposes revolves around the position of the owner of a space object and its intention to discard it. From this, the paper analyses the implications of such approach on the regulatory challenges mentioned above. In order to tackle them, it refers to the Outer Space Treaty, to the Liability Convention and to the Registration Convention, arguing that the system of international space law provides all the elements necessary to find a coherent and effective solution to the issues of jurisdiction, control, ownership and liability related to removing space debris. Possible ways of implementing the findings of the paper are proposed at the end, taking into consideration also the role that legal solutions can play in inducing operators (public and private) to put in place ADR operations.