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ARTIFICIAL INTELLIGENCE, SPACE LIABILITY AND REGULATION FOR THE FUTURE: A TRANSCONTINENTAL ANALYSIS OF NATIONAL SPACE LAWS

Abstract

Space-related activities are being transformed by NewSpace innovations. The commercialization of the space sector offers a series of opportunities, from increased funding to support space exploration missions, to assisting with the mitigation of space debris, to digitalization and access to the Internet across developing countries. The private sector also facilitates the deployment of emerging technologies, such as artificial intelligence (AI), which is currently used for satellite collision avoidance, autonomous docking, assistance to astronauts, spacecraft operations management among others.

In addition to their benefits, various technological advancements introduced by the private sector also challenge the adequacy of traditional space law to address some complex issues. The increasing autonomy of AI-deployed space objects, coinciding with the associated decreasing role of human 'control', does not sit squarely in sync with existing space law concepts, particularly with respect to liability for damage caused by space objects, and the obligations of states for continuing supervision of national activities in space as well as for controlling space objects.

In this regard, the role of national legislation becomes increasingly important. National space law is premised on a balancing of the interests of both private actors and states to provide appropriate safeguards for the general public, while aiming to promote further technological innovations.

This paper will analyse the concept of liability for damage caused by space objects that incorporate AI through the lens of national space legislation. We will undertake a transcontinental analysis of examples from diverse parts of the world: the Netherlands, Indonesia, Australia, South Korea and the UAE. Based on our analysis, we will provide recommendations de lege ferenda as to potential solutions for regulating AI liability caused in the context of space activities with humans 'out of the loop', taking account also of the AI Act proposed by the European Commission in April 2021, and the European Parliament's resolution on a civil liability regime for AI issued in October 2020.