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ARTIFICIAL INTELLIGENCE IN OUTER SPACE: THE RESPONSIBILITY OF THE STATE OF THE SOFTWARE DEVELOPER UNDER ARTICLE VI OUTER SPACE TREATY

Abstract

The swift development and adoption of artificial intelligence (AI) presents a unique opportunity for the next generation of space exploration. AI applications can operate distant spacecraft without the delays associated with Earth-based control or the risks of human error. Consequently, AI has the potential to lower costs, reduce timeframes, and enhance the accuracy of space activities. Yet using AI for space activities presents specific challenges for international space law. This is because international space law remains centered on five treaties governing outer space activities, all of which were negotiated, drafted, and signed in the period from 1967 to 1979. As such, these treaties were negotiated, drafted, and concluded long before our current AI applications, and in an era when spaceflight was the sole preserve of States. Yet space activities are now increasingly carried out by private enterprises for commercial gain. These enterprises are already using AI applications to conduct critical space operations such as conjunction avoidance and deorbiting. This situation raises various legal questions, including issues relating to international responsibility. Article VI of the Outer Space Treaty relevantly provides for the 'international responsibility' of States for their 'national activities in outer space' regardless of 'whether such activities are carried on by governmental agencies or by non-governmental entities.' The exact scope of Article VI is a matter of debate and the advent of AI adds further complexity. In particular, could the development of AI applications for space activities be considered a 'national activity in outer space' such that the State of the software developer bears 'international responsibility' for those activities under Article VI? And would that same State be the 'appropriate party' for the 'authorization and continuing supervision' that Article VI requires? This article reflects on these questions and explores how the State of the software developer can be an Article VI responsible state. From a doctrinal perspective, we argue that Article VI is sufficiently open-textured to potentially encompass the State of the software developer. From a policy standpoint, we also contend that the State of the software developer is generally best positioned to control and supervise the development of the relevant AI application. Overall, our analysis suggests that States may not fully recognize their potential international responsibility for AI applications. This oversight has significant implications, especially for States championing the development and deployment of AI applications, for use both in outer space and here on Earth.