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Legal Implications of Evolving Remote Sensing Technologies (3)

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ASSESSING THE UITILITY OF MEGA-CONSTELLATIONS OF SMALL SATELLITES AGAINST THE NEED TO PRESERVE THE GLOBAL COMMONS

Abstract

It is beyond doubt that the space sector has experienced substantial changes over recent years. The advent of 'minaturised' satellite technology has seen a shift from almost total reliance on complex, large and expensive spacecraft, towards the use of smaller, simpler and less expensive satellites. The resultant decrease in barriers to entry means that satellite 'swarms' and large-constellations are now feasible, not only to provide global connectivity, but also for remote sensing. The utilization of this technology together with high-precision large satellites will generate geophysical variables capable of characterizing vegetation, water and air quality, which provides critical climate data in order to better understand and mitigate the effects of climate change. This data is vital in order to plan steps that would ensure long-term sustainability of our planet.

However, notwithstanding the crucial technical contribution that constellations of small satellites may be able to make in this regard, they also give rise to many open legal and policy questions. For example, even though they may help to preserve the Earth environment, if not properly regulated they may at the same time jeopardize the LEO environment and our access to space.

This paper will investigate how small satellite swarms should be regulated in order to ensure the sustainability of outer space as a global commons. At the international level, UNCOPUOS has adopted in 2019 (voluntary) Guidelines for the Long-term Sustainability of Outer Space Activities (LST Guidelines). At a national level, several States are working on the establishment of licensing frameworks for the launch of the small satellites, while others are already granting licenses for their launch. Even though States are encouraged to implement the LTS Guidelines, there is always the risk that the adoption of diverse national legislation can lead to a lack of uniform approaches to the regulation of mega-constellations.

These myriad circumstances pose a key question upon which this paper will focus: do States have a legal obligation to regulate for the protection of space as a global commons on an international level and in a binding manner?