THE DEMOCRATIZATION OF OUTER SPACE: ON LAW, ETHICS, AND TECHNOLOGY

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EXTENDED ABSTRACT

The research addresses the challenges brought forth by projects on mass space exploration developed by private companies as well as current investments on space tourism, space hotels, and other space human activities, e.g., scientific research in outer space missions over the next few years. Such projects and investments go hand-in-hand with the growth of the space economy and business revenue hinging on dramatic decreasing costs for space missions and spacecrafts (Lyall and Larsen 2018; Ziemblicki and Oralova 2021). In turn, the growth of space economy and current activism of policy makers depends on the exponential advancements of technology, from smart robots equipped with AI to increasingly autonomous and intelligent artificial systems (Bratu et al. 2021; Martin and Freeland 2021; Pagallo et al. 2023).

The scenario of multi-planetary human life entails fascinating problems of political philosophy, ethics, and legal theory on how to govern millions of people in space. The focus of the analysis in this paper is restricted to current efforts of EU lawmakers to address the challenges of AI systems. The case study of the European Space Agency (ESA) and the arbitration clauses of its contracts for the use of the Columbus Laboratory in the International Space Station aims to illustrate the limits of traditional approaches, and why principles and provisions of space law should be complemented with further fields of legal regulation, such as those of personal data protection and privacy, cybersecurity and machinery regulation, down to tortious liability and consumer law (Pagallo 2011; Pagallo 2013a; Bassi et al. 2019; Falco 2019). The assumption is threefold. First, the quest for the democratization of outer space casts further light on the democratic deficit of such institutions, as the European Union, vis-à-vis current trends on the privatization of outer space. Second, ethics and moral arguments play a critical role in filling the gaps and shortcomings of current legal regulations, both contributing to shaping legislation and interpreting valid law in the best possible light (Marsh 2006; Pagallo 2013b; Pagallo 2018; Jessen 2017; Rogerson 2022). Lastly, from a legal viewpoint, it seems fair to admit that most liability issues of outer space (Ernest 1991; Dennerley 2018; Larsen 2019) will progressively regard private parties and safeguards that private companies should guarantee to protect the rights of the next generation of space tourists, explorers, and even settlers (Freeland and Jakhu 2014; Scheutz and Arnold 2016; Lim 2020; Freeland and Ireland-Piper 2022; Martin and Freeland 2022).

In order to provide a hopefully fruitful view on the subject matter, we plan to divide the analysis into four parts. First of all, focus will be on a main driver of the next generation of space tourists and explorers, namely, the dramatic decreasing costs for space missions and spacecrafts. Then, the analysis dwells on the core of the privatization of outer space, i.e., the very appropriability of space resources, as the crux of many debates of today's public international law (Pekkanen 2019). On this basis, the further step is to investigate how EU law regulates the status of potential outer space tourists, or explorers, with the case study of the regulatory framework for

the Columbus Laboratory in the International Space Station (ISS). Finally, the drawbacks of this regulatory framework are under scrutiny vis-à-vis current efforts of lawmakers to tackle the normative challenges of AI in such fields as cybersecurity, machinery safety, consumer law, data protection, and more.

Drawing on tenets of space law, philosophy of technology, ethics, and technological regulation, the conclusion of the investigation stresses the relevance of the issue, i.e., the 'democratization of space' and why the speed of technological innovation together with human ingenuity will increasingly put this topic in the spotlight. In 2022, the Director of the new heavyweight aerospace contractor SpaceX, i.e., Benji Reed declared in a press briefing what they want: "We want to make life multi-planetary, and that means putting millions of people in space." Leaving aside the promise, or the menace of Space X's Director on "millions of people in space," it seems fair to admit that we should be ready to properly tackle the challenges of this next generation of humans that will leave Mother Earth.

KEYWORDS: Artificial Intelligence; Democracy; Human Rights; International Space Station; Robotics; Space Law.

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