IN SUPPORT OF GLOBAL ACCOUNTABILITY FOR PRIVATE COMMERCIAL SPACE ACTORS

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It is a pleasure to share my reflections on the theme "New Norms? Commercial Actors." Modern society is highly dependent on outer space. From agriculture, information technology, medicine, and transportation to energy, the environment and defense, outer space is used for many aspects of day-to-day life. Most of these services are provided by private companies. Whilst these companies are usually subject to domestic laws, they are not held accountable at an international level despite the fact their conduct may have global implications. My brief remarks center around two issues: the global public interest in space utilization and the need for global standards of accountability for private commercial space actors.

Space law and policy can sometimes appear to be largely concerned with intangible or hypothetical situations. In an effort to accentuate the practical realities of increasing utilization of outer space, the Swarm Technologies ("Swarm") incident will be used to exemplify the importance of the global public interest and the need for global accountability measures for private commercial space actors. The full facts of the incident are multifaceted, however, due to time constraints a summary will suffice.

Swarm is a company based in California. Their objective is to provide low-cost internet to rural communities throughout the globe via satellite. In furtherance of this objective, Swarm applied to the Federal Communications Commission ("FCC") in early 2017 for a license to both launch and operate its experimental "Space BEEs." The Space BEEs were a bundle of four picosatellites, satellites which are relatively tiny compared to the more traditional satellites with which we have become familiar. Picosatellites are currently in a testing phase and not yet in common usage. After Swarm submitted its application to the FCC, both parties engaged in conversations during which it became clear the FCC was concerned the Space BEEs were not going to be (easily) trackable. In December 2017, the FCC denied Swarm's application, stating that to grant the application would be contrary to "the public interest."[1]

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[1] Letter from Anthony Serafini, Chief, Experimental Licensing Branch, Fed. Commc'ns Comm'n, to Sara Spangelo, Swarm Tech., Inc. (Dec. 12, 2017), *available at* https://apps.fcc.gov/els/GetAtt.html?id=203152&x= (informing Swarm that the FCC would not be approving its grant application).

Shortly after receiving the notice of rejection and in direct contravention of the FCC's decision, Swarm intentionally and unlawfully had its Space BEEs launched into orbit from India on an Indian rocket. About a month later, the FCC became aware that the Space BEEs had been launched. Its Enforcement Bureau conducted an investigation and found that in addition to the unlawful launch, Swarm had conducted a litany of other unauthorized and illegal space activities. This included illegal communications and experiments between its satellites in orbit and ground stations right here in the state of Georgia.[2] In December 2018, Swarm admitted liability for violating provisions of the Communications Act 1934 (as amended) as well as the Code of Federal Regulations. Swarm agreed to a number of measures including payment of a $900,000 fine and implementation of a compliance plan.[3]

Swarm violated domestic law, admitted liability and were, rightly, sanctioned. Some might thus consider the matter settled. However, beyond the fact that the U.S. government would be potentially legally responsible and liable at the international level had the Space BEEs caused any damage, the Swarm incident raises a number of other issues, including its incursion into the global public interest.

Before focusing on the concept of the global public interest, I would first like to highlight a related concept: the global commons—natural resources or areas which are shared by the global community as opposed to belonging to one or several states.[4] Outer space, like Antarctica and the High Seas, for example, have long been considered by many to be part of the global commons. This is a view I and a number of the panelists share.[5] However, the notion of outer space as a global commons is being increasingly contested. The Executive Secretary of the National Space Council here in the U.S. has recently reiterated—quite clearly—the U.S. position that outer space is not a global

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[2] Swarm carried out unauthorized tests, including communication transmissions of various equipment. One such test involved "weather balloon-to-ground station tests, including on cars driving around Palo Alto, California, that exchanged radio signals." In the Matter of Swarm Tech., Inc. FCC 18-184, 3 (2018), *available at* https://docs.fcc.gov/public/attachments/FCC-18-184A1.pdf.

[3] The compliance plan included measures such as the creation of a compliance manual, implementation of a compliance training program for employees and the requirement to file pre-launch reports. In the Matter of Swarm Tech., Inc., *supra* note 2; Press Release, Fed. Commc'ns Comm'n, FCC Reaches $900,000 Settlement with Swarm for Unauthorized Satellite Launch (2018), *available at* https://docs.fcc.gov/public/attachments/DOC-355578A1.pdf.

[4] SUSAN J BUCK, THE GLOBAL COMMONS: AN INTRODUCTION (1998).

[5] Cassandra Steer, *Global Commons, Cosmic Commons: Implications of Military and Security Uses of Outer Space*, 18 GEO. J. INT'L AFF. 1, 9–16 (2017); Frans G von der Dunk, *Target Practising in a Global Commons: The Chinese ASAT Test and Outer Space Law*, 22 KOR. J. AIR & SPACE L. & POL'Y 1, 55–74 (2007).

commons.[6] Nevertheless, the fact is that outer space is beyond the territorial jurisdiction of all states. This makes all space activities a matter of concern for the entire international community. My remarks are therefore based on the premise that there is an inherent global public interest in the use of outer space.

So, what is this notion of the global public interest? Kulick states that it is "all interests inhering a pivotal importance for the international community and bearing relevance on both the domestic and international levels."[7] In the context of space specifically, Jakhu defines it as "the inclusive interest of the international community in outer space."[8] International space law principles, particularly those in the Outer Space Treaty 1967*,* support the notion of the global public interest.[9] The objects that go into space, where they are placed, how fast they're traveling, whether they crash to the Earth's surface or collide with other space objects, and the quantity of debris they generate, are all examples of information that are vital to the international community. Being unaware of what objects are launched or being unaware that certain radio frequencies are being used to transmit from satellites—both of which were an issue with Swarm and its Space BEEs—can spell many problems beyond the simple interruption of our satellite television, internet service or GPS. It could result in, for example, interruption to international aviation networks, destabilization of telemedicine platforms which provide crucial health services, interruptions to the electronic banking system, problems to natural disaster weather forecasting, as well as threats to national and international security.

Article VI of the Outer Space Treaty 1967 seeks to protect this global public interest by imposing an obligation on the appropriate State Party to authorize and continually supervise space activities of non-governmental agencies. Article VI also requires States Parties to ensure that national activities in outer space, seemingly including those of non-governmental agencies, are carried out in compliance with the treaty. In contrast, private commercial entities are not party to the Outer Space Treaty 1967. The mainstream position therefore is that they are not legally required under international law to comply with its provisions. In other words, private actors may cause harm—which may be irreversible—to the outer space environment or the Earth through their space

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[6] Scott Pace, Space Development, Law, and Values, Address at the IISL Galloway Space Law Symposium (Dec. 13, 2017), *available at* https://spacepolicyonline.com/wp-content/uploads/2017/12/Scott-Pace-to-Galloway-Symp-Dec-13-2017.pdf; Tim Fernholtz, *Space is Not a "Global Commons," Top Trump Space Official Says*, QUARTZ (Dec. 19, 2017), https://qz.com/1159540/space-is-not-a-global-commons-top-trump-space-official-says/.

[7] ANDREAS KULICK, GLOBAL PUBLIC INTEREST IN INTERNATIONAL INVESTMENT LAW (2012).

[8] *Ram Jakhu, Legal Issues Relating to the Global Public Interest in Outer Space*, 32 J. SPACE L. 1, 32 (2006).

[9] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27 1967, 610 U.N.T.S. 205, 18 U.S.T. 2410.

activities or they may intentionally and unnecessarily contribute to the risk of harm without any form of *international* accountability, though they may be sanctioned at the *national* level.

As demonstrated by Swarm, private commercial space actors may be willing to bear the burden of domestic penalties where the likely punishment is outweighed by the benefits of breaching the domestic law. Swarm's sanction was quite a light touch because the fine was not much more than the amount of money the company had received in public grants. This means Swarm violated the law and suffered very little financial consequence. FCC commissioner, Michael O'Reilly, conceded that, in his opinion, the fine was not enough to deter similar behavior.[10] Furthermore, the FCC granted Swarm licenses while the investigation was ongoing. Such action essentially amounted to retrospective authorization and also does little for specific or general deterrence.[11]

So, how do we address situations like the Swarm incident at a global level? I propose a two-part international accountability mechanism specifically for private commercial space actors. The first part would comprise global minimum standards, including the duty to only conduct commercial activities where they have in fact been authorized by national regulators. Attached to these standards would be globally accepted penalties. Currently, whether private commercial space actors such as Swarm are sanctioned for violations is left entirely to the discretion of states. The problem with this is that some states may choose not to impose any sanctions in order to advance their domestic space industry, or, where they do impose penalties, it may be vastly different to that imposed by other countries. As profit is the primary objective of private commercial actors, diversity in domestic penalties will lead to forum shopping and the lowest common denominator where, as Doucet notes, "the ultimate casualty will be safety of operations and sustainability of the outer space environment."[12] In order to avoid jeopardizing the safety and sustainability of outer space, minimum standards applicable across the globe for private space actors should be formulated. The second part to this accountability mechanism would be procedures by which compliance with these minimum standards can be assessed.

My proposal raises a number of questions. Would these standards be binding or voluntary? As much as they may be welcomed, internationally legally binding obligations for private commercial space actors are unlikely in the near future given the current geo-political climate. Alternatively, voluntary

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[10] Michael O'Rielly, Comm'r, Fed. Commc'ns Comm'n, Statement Re: Swarm Technologies, Inc. (Dec. 20, 2018), *available at* https://docs.fcc.gov/public/attachments/FCC-18-184A3.pdf.

[11] For a simple overview of deterrence theory, see *Kelli D Tomlinson, An Examination of Deterrence Theory: Where Do We Stand?*, 80 FED. PROB. J. 33, 33–38. (2016).

[12] Gilles Doucet, *Outer Space SARPs: A Mechanism for Implementation of Space Safety Standards*, 6 J. SPACE SAFETY ENGINEERING 145, 145–59 (2019).

measures could be introduced. Though some private commercial space actors may choose not to subscribe, voluntary measures of global accountability could nevertheless be of benefit. Reputational damage and soft enforcement mechanisms, particularly those which are market-based, may be effective in encouraging responsible and sustainable space conduct by private commercial space actors. Additional questions arise: How would compliance be assessed, what body or organization would impose the penalties and how would they be enforced? These matters require significant consideration but are possible to address.

It is important to note that I do not propose we displace the current international responsibility of states for non-state actors as provided by Article VI of the Outer Space Treaty 1967. Rather my suggestion is to introduce complementary measures, some form of global accountability mechanism for private actors which would create and entrench norms parallel to the obligations of states under international space law, perhaps though with more specificity.

In conclusion, the Swarm incident raises a number of issues but what is important to the theme of this panel about governance and norms relating to potential commercial uses of space, is that conduct like Swarm's does not develop into a norm. It is also important that in the hopefully rare circumstances in which such conduct occurs in the future, proportionate punishment swiftly follows in order to aid deterrence. If we start accepting the type of intentional behavior exhibited by Swarm, chaos will ensue, there will be more risks of collisions and more debris unaccounted for. Over time, this would reduce the safe and sustainable use of outer space which is obviously against both business interests and the global public interest. It is therefore vital that where private commercial space actors have the benefit of utilizing the global commons that is outer space, they equally have the burden of being globally accountable for said use.