International Regulatory and Licencing Schemes for Telecommunication Satellites in Low-Earth Orbit to Mitigate Anti-Competitive Behaviour and Manage Natural Monopolies

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Abstract

Previous work has been undertaken (Green, Neumann, Grey 2018) to consider the development of the Newspace Sector and its impact on space activities in Low Earth Orbit (LEO).

This previous work noted that although propertisation of space and celestial bodies is prohibited pursuant to the *Outer Space Treaty 1967* (UN), orbits within space still remain rivalrous and commercially lucrative. For example, by operating in a LEO environment, a constellation of satellites would prevent other competitors from also operating and providing services within that same orbital plane or orbital shell.

A regulatory scheme may be advantageous in mitigating anti-competitive conduct between private enterprises by allowing new entrants to market to gain access to

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commercially lucrative orbital planes, while ensuring access for government continues for national security and emergency response activities.
This paper will consider these issues and explore what a regulatory or licensing scheme would look like for private enterprises operating in LEO and how UNOOSA and the ITU may act as arbiters. This paper will also offer solutions to facilitate a regulatory; or, licensing scheme that prevents anti-competitive conduct.

Keywords: Regulation, Orbit, Space, Law, Jurisprudence, Tetrad

1. Introduction

This paper is the third in a series investigating the use of rivalrous areas of space within Earth's orbit.

The first paper on this topic was presented at the International Astronautical Congress (IAC) in Bremen in 2018 at the 62nd Colloquium on the Law on Outer Space, International Institute of Space Law (IISL). This paper explored the regulation and use of Earth's low earth orbit by the burgeoning satellite constellation industry and ensured that some orbital planes; or, orbital shells, remained accessible by new entrants.[1] The first paper also identified that the activities endemic to what is dubbed 'NewSpace' was distinctive from previous commercial endeavours within the space environment, and that new regulatory approaches would be required to resolve the consequences of emerging commercial practices regarding satellite constellations.

The second paper in this series was presented at IAC in Washington in 2019 at the 62nd Colloquium on the Law on Outer Space, IISL, and expanded on the work of the first paper by applying the principles of rivalrous use of space within the scope of Earth-Solar and Earth-Lunar lagrangian points that may be advantageous to commercial enterprise in the future.[2] The second paper additionally considered government and emergency priority – specifically defence and emergency purposes – survived commercial endeavours. The second paper also noted that placing government and military satellites in lagrangian points may have the curious effect of effectively demilitarising the space environment as anti-satellite weaponry cannot impair satellites optimally at these altitudes relative to Earth.

1 Green, T., Neumann, P., Grey, K., "Mitigation of Anti-Competitive Behaviour in Telecommunication Satellite Orbits and Management of Natural Monopolies", 69th International Astronautical Congress, 61st Colloquium on the Law on Outer Space, International Institute of Space Law, Bremen, Germany, pp. 301-314 (2018).

2 Green, T, Neumann, P, Grey, K, Sandlin, T, *Earth, Solar and Lunar Lagrangian Point management in the Mitigation of Anti-Competitive Conduct and Management of Natural Monopolies in Commercial and Military Space Activities* 70th International Astronautical Congress, 62nd Colloquium on the Law on Outer Space, International Institute of Space Law (2019).

An additional paper adjacent to the first two was also presented by the main author of this paper series in 2019 at the Australasian Association for the History Philosophy and Social Studies of Science biennial symposium in Wellington.[3] That paper did not consider the regulatory considerations explored in the two main papers noted above; but related specifically to practical ethics and their application to space within a broader philosophical framework, as well as business ethics within the Australian and New Zealand space industries specifically.

Both the first and second paper in this series relied upon the principle that: whereas space is infinite, the area of space that may be of commercial value remains finite. Both these papers explored and identified options for developing a roadmap for the future regulatory use of Earth's orbital environment to mitigate the risk of natural monopolies forming within these domains.

Both these papers identified the International Telecommunication Union (ITU) – a specialist agency of the United Nations – as being an optimal regulator given the previous powers afforded to this organisation for the management of Earth's geostationary orbit (GEO).

This paper builds upon the work of the previous two papers by expanding beyond the risk of monopolistic and anti-competitive practices forming; as well as identifying the need for regulatory mechanisms to assess what the future regulatory scheme may look like. To achieve this goal, this paper first addresses the previous research undertaken in this area. This paper then proceeds to assess the powers afforded to the ITU and reaffirms why it would be the suitable regulatory authority under the existing United Nations scheme. This paper will then introduce the methodological approach to assessing the jurisprudential future of regulating rivalrous areas of space while identifying four key approaches that may be advantageous for future regulators of the rivalrous areas within Earth's orbital terrain.

2. Background & Previous Work

2.1. Space Debris & Commercial Activities

Awareness of orbital debris mitigating access to Earth's orbital environment by government and commercial actors have been extensively described, from Kessler and Cour-Palais[4] to more recent modelling by White and Lewis[5] as

3 Green, T., *Now, more than ever, we need the space philosophers*, Australasian Association for the History Philosophy and Social Studies of Science biennial symposium, Wellington, NZ (2019)

4 Pp. 2637–2646, Kessler, D.J., & Cour-Palais, Burton, G., 'Collision frequency of artificial satellites: The creation of a debris belt' (1978) 83.A6 *Journal of Geophysical Research*.

5 White, A.E., & Lewis, H., 'An adaptive strategy for active debts removal' (2014) 58.3 *Advances in Space Research*.

well as broader regulatory considerations.[6]

Dubbed a 'Kessler Syndrome', after a collision between existing orbital debris and satellites within Earth's orbit may generate a larger orbital debris field that could spread through the surrounding orbital environment, thereby increasing the debris field and navigational hazards.[7] The outcome of this debris-field creation cycle may result in a cascading effect of new debris being formed, and creating a self-sustaining cycle of debris within the space environment, thereby mitigating use of either specific orbital altitudes or the total orbital environment.

Recent literature, building upon Kessler's work in 1978, indicates that some orbital planes or orbital shells are now approaching the threshold of debris density, and that without active debris removal measures put in place, an orbital tragedy of the commons may occur.[8]

Extensive international and domestic regulatory oversight has been established in recent years to mitigate the risk of a Kessler Syndrome occurring. This includes such measures as the *Debris Mitigation Guidelines 2007* (UN) as well as domestic legislative instruments such as s 9(1)(c) of the *Outer Space and High-altitude Activities Act 2017* (NZ) or Division 3 of the *Space Activities Amendment (Launches and Returns) Act 2018* (Cth).

In addition to these regulatory schemes, engineering plans continue to evolve to improve active debris removal, albeit with technical complications for implementation.[9]

2.2. Commercial Activities and Rivalrous Use

Notwithstanding the considerable and warranted concerns in the literature of space debris in Earth's orbital environment preventing use of space by current and future actors, there also remains the issue of the use of rivalrous areas of space, which was covered extensively in the first and second papers.[10] In the introduction to the first paper to address this topic, the authors Green, Neumann and Grey noted that:

> Space is vast beyond measure, but those volumes of it that are economically useful to humanity are not. Certain orbital shells become useful due to the orbital period of satellites inserted into those orbits (such as Geosynchronous Earth Orbit (GEO); the proximity for Earth to Earth observation (EO) satellites in LEO; and a combination of the previous two merits for satellites inserted in Sun synchronous orbits (SSO) for EO and satellite ground track coverage.[11]

6 Ibid, n1.
7 Ibid, n4.
8 Ibid, n5.
9 Erwin, Sandra, 'At Small Satellite Conference, Frustration About Lagging Efforts to Deal With Space Junk' 18 November 2018, space.com, https://www.space.com/42365-space-junk-cleanup-efforts-frustration.html (accessed 27 October 2019).
10 Ibid, n1 & 2.
11 Ibid, n1.

The technical advantages offered by certain orbital planes and orbital shells is not reserved solely to Earth's immediate orbital environment. Writing on the concerns of lagrangian points and their effective management, the authors – now Green, Neumann, Grey and Sandlin – noted that:

> Presently, the focus of commercial and non-government actors undertaking space activities – commonly referred to as "NewSpace" – are limited to Low Earth Orbit (LEO) with some planned activity in Medium Earth Orbit (MEO) into the future.
>
> There are numerous missions that benefit from the orbital stability offered by Earth-Solar (ESL) and Earth-Moon (EML) Lagrangian Points, including solar monitoring such as demonstrated by SOHO; communications as demonstrated by Queqiao, and future settlement activities.
>
> Lagrangian Points also promise the same – or better – commercial and national advantages found in Earth's orbital environments of LEO, MEO and GEO. For example, the Earth-Moon L4 and L5 Points meet the criteria for telecommunication and telemetry services admirably, with a communications delay of approximately 2.5 seconds, thereby enabling shorter telepresence decision loops.[12]

The central emphasis for both these papers relied upon the risk of first-mover advantages caused by satellite constellation and similar networked activities monopolising the orbital environment. In the first paper addressing the risk of commercial activities causing a barrier to entry through anti-competitive conduct in LEO, it was noted that:

> Beyond their respective obstacles of design and launch, other challenges are posed by the large-scale deployment of multiple satellite constellations which distinguish NewSpace from previous generations of space activities. The LEO environment is not homogenous, nor infinite. Some orbital planes are more favourable for communications than others. The entities that commence operations first may have the advantage of preventing their competitors from also providing similar services, by monopolising the orbits of interest.[13]

The second paper, exploring the future use of lagrangian points for commercial endeavours also noted that similar risks of first-mover advantages mitigating the future-use of these environment was present. In the second paper, it was stated:

> Managing access to Lagrangian Points is critical for the continued development of near-Earth space. Implementing traffic control measures now, while utilisation is still nascent, may be a more effective jurisprudential strategy than waiting until there are complications due to historical use-cases.[14]

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12 Ibid, n2.
13 Ibid, n1.
14 Ibid, n2.

Together these two papers addressed the risks of unregulated deployment and use of satellite constellations – and associated satellite networks – in reducing the future use of Earth's orbital environment for commercial space activities.

2.3. Government Priority for Emergency and Military Applications

The second paper in the series also addressed the use of rivalrous areas of space for government purposes related to defence and emergency activities. The second paper noted that the act of using lagrangian points by national governments and their associated faculties may curiously have the unintended advantage of reducing the risk of the space environment becoming a war domain. In the second paper in this series, it was noted that:

> Beyond their potential commercial use, Lagrangian Points may also have immediate and practical advantages for government emergency and military purposes. The LEO environment commences at the Karman line at 100 km and terminates at 2 000 km altitude; Medium Earth Orbit (MEO) commences at 2 000 km and terminates at 35 000 km and GEO is located at approximately 35 000 km.
>
> Although these altitudes are relatively distant for the purposes of manned flight and aeronautical engineering, they are still within the scope of most conventional weapons and anti-satellite technology.
>
> Government and military organisations adopting the use of Lagrangian Points over LEO, MEO and GEO may effectively de-militarise space entirely and in so doing, maintain the core focus of keeping the use of space peaceful for all nations.
>
> This is in part due to the inability for conventional terrestrial-based weapons systems from targeting these areas. For example, ESL1 and ESL2 are 1.5 million km distant from Earth. A conventional ballistic missile does not possess the accelerant required to escape Earth's gravity well and reach either ESL1 or ESL2. Further, the distance required to reach a target in ESL1 may provide enough advanced warning to allow an intended target to alter course to avoid damage, or for the anti-satellite weapon itself to be intercepted by ground-based systems. These challenges may be significant enough mediating factors as to dissuade state actors from investing and innovating in the field of space-capable weaponry.[15]

In addition to these previous findings regarding government priority and emergency use within rivalrous environments, the authors of this paper have also prepared a separate paper for the 2020 IAC proceedings regarding notification and use of satellite telemetry for disaster mitigation from geomagnetic storms caused by a Coronal-Mass Ejection (CME) from the sun capable of causing a Carrington Event and disrupting the electrical grid on

15 Ibid, n2.

the Earth's surface.[16] Focus on use of satellite networks for government priority and emergency use are being brought into focus, such as through the recently passed *Promoting Research and Observations in Space Weather to Improve the Forecasting of Tomorrow (PROSWIFT) Act 2020* (USA) which places greater focus on the use of space weather monitoring satellites to ensure emergency response in the event of a CME that may pose a risk to Earth's electrical network. However, to ensure the capability of disaster-mitigation from space weather monitoring satellites, management of the orbital domain will continue to be a necessity to ensure that orbital access remains viable for these purposes.

2.4. Further Considerations Regarding Space Traffic Management

Means of reducing risk of monopolies forming in rivalrous environments may also be considered through future engineering and regulatory strategies. These may include a potential means to organise an appropriate response from satellite operators facing a collision is the development of orbital "give way" rules.

Such a set of rules could be laid out in a flowchart of responsibility based on several factors such as the propulsive capability of the objects, relative orbit altitude, satellite function, constellation size (if appropriate) or potentially specific orbital exceptions for spacecraft in critical locations or applications.

The specifics of how such a system of rules would operate is beyond the subject of this paper but could be explored further.

2.5. International Telecommunication Union

Both of the previous papers on this topic identified the ITU as being the best-placed organisation to regulate rivalrous areas within Earth's orbital environment.

The ITU was identified due to the sub-branch of the ITU, the International Telecommunication Union Radio-communications sector (ITU-R) administering and regulating radiofrequency communications for surface-to-orbit, orbit-to-surface and inter-spacecraft activities as well as management of orbital slots for satellites in GEO.

In considering the scope of the powers afforded to the ITU-R the authors of this paper previously noted that:

> Historically, some ITU-R decisions, alongside their domestic counterparts have been contentious, but they have also achieved decades of peaceful and productive operations in the GEO communications market, while

16 Green, T., Neumann, P., Cullum, C., Sandlin, T., Pender-Rose, I., Mahoney, R., "Redesigning State Emergency Management Legislation to Proect Electrical Networks in the event of a Carrington Event: International Responses and Domestic Solutions – a UAE, US and Australian Exploration" 71st International Astronautical Congress, 31st IAA Symposium on Space and Society, CyberSpace Edition (2020).

> disallowing any monopolisation of communications spectrum by any operator or class of spacecraft.
>
> Among the conditions for operating a spacecraft in GEO is the disposal requirement; that a certain portion of spacecraft propellant be reserved so that the spacecraft can be moved safely away from the operational GEO and into a "graveyard" orbit as per Recommendation ITU-R S.1003. This requirement is part of any GEO satellite owner/operator's application to its relevant national authority for the allocation of a GEO slot, and as such is subject to relevant laws in accordance with the ITU treaty. The disposal requirement has kept GEO space largely free of debris while ensuring that new satellites can be moved into slots vacated by ageing satellites. Something similar could be suggested for LEO constellations.[17]

The administrative precedent and regulatory scope of the ITU-R to administer the management of orbital slots in GEO demonstrates continued abilities for the ITU-R to administer other rivalrous areas within Earth's orbital environment. However, notwithstanding the effectiveness of the ITU-R to act as arbitrator for future use of space by commercial and government actors, the method by which the regulation would occur remains the principle focus of this paper.

3. Methodology

3.1. Marshall McLuhan

In 1967 – ten years after Sputnik – the predecessor to today's satellite constellation networks: Early Bird; Lani Bird; and, Canary Bird; broadcasted a 150 minute show dubbed *Our World*. Nineteen countries had participated in filming of *Our World*, and it was watched by 400 million people worldwide.[18] Segments included the last broadcast on live television of the Beatles singing 'All You Need Is Love' that had been specifically written for the broadcast. Alongside other luminaries of 1960s culture who appeared on the *Our World* broadcast televised across the world was the Canadian media theorist Dr Marshall McLuhan.

Three years before the *Our World* broadcast, in 1964 McLuhan had written on the sociological application and use of satellite technologies in *Understanding Media*. McLuhan's particular focus was on the early broadcasting satellite TelStar and the future implications and use of satellite telecommunications, as well as its impacts on society and culture.[19]

17 Ibid, n1.
18 Pp. 40-41, Bloom, John, *Eccentric Orbits* (Grove Press, 2016).
19 Pp. 172-178, McLuhan, Marshall, *Understanding Media* (Routledge Classics, 2005 ed.).

The future of the satellite industry and regulatory schemes would continue to be of interest for McLuhan for the remainder of his professional career, and until his death in 1980.[20]

In his posthumous book *The Global Village* published in 1989, McLuhan would presciently observe the effects and risks of satellite networks that has only recently been addressed in the previous papers by these authors. McLuhan states:

> Satellites began in 1957 as mere reflecting mechanisms. Today they are radio relays for high-frequency microwaves. Tomorrow they satellites will grow beyond the cargo-carrying capacities of the space shuttle and become worlds unto themselves, capable of carrying on high-speed dialogues with earth-based telecommunications machines in excess of anything human beings may understand. The satellite string, or cluster, once in place and safeguarded from sudden disruption, could become a force for decentralisation in human affairs which might weaken the written word to a point of dissolution.
>
> How did this state of affairs come about? To a certain extent, the space jam was a failure of international regulation. The French, the Germans, the Japanese, acting in private consortiums and selling to the highest bidder, had made it relatively easy for small countries to go into near space. (No one, at any of the space conferences, would agree, for example, on a legal definition of near space.) People all over the world could afford one-meter receiving disks when NHK planar circuits were mass-produced.[21]

Given Marshall McLuhan's experience as one of the earliest sociologists and media theorists to explore the discreet areas of the application and use of satellite networks; as well as the risk of monopolisation in rivalrous areas within Earth's orbital environment, the authors of this paper identified the use of McLuhan's methodological Tetrad as being optimally suited for navigating the future of regulatory schemes.

3.2. The Tetrad

While describing the purpose of the Tetrad in the preface to *Laws of Media: The New Science* Dr Eric McLuhan noted that the concept of the Tetrad was born from an initial undertaking to complete an updated version of Marshall McLuhan's previous book *Understanding Media*.[22]

While reviewing the previous research materials that formed the work in *Understanding Media*, both Marshall and Eric McLuhan noted that a scientific methodological approach was required to assess the effects of

20 Pp. 150-151 McLuhan, Marshall & McLuhan, Eric, *Laws of Media: The New Science* (University of Toronto Press, 2007 ed.).

21 Pp. 115-117, McLuhan, Marshall & Powers, Bruce, *The Global Village: Transformations in World Life and Media in the 21st Century* (Oxford University Press, 1989).

22 Pp. vii – ix, Ibid, n 20.

technological approaches and consequences of their application to specific environments. The concept of the Tetrad was derived to allow for the appraisal and subsequent response to new technological artefacts that enter the environment.

While writing concurrently with Eric McLuhan on the *Laws of Media: The New Science*, Marshall McLuhan and Bruce Powers also produced *The Global Village: Transformations in World Life and Media in the 21st Century*. In *The Global Village*, both McLuhan and Powers conceptualised how the methodological approach would appear for the tetrad in assessing new technological endeavours.

The tetrad provided a methodological approach of simultaneously exploring four relevant – and interconnected – questions for investigation to assess how a technology may cause affects within its environment.

The four questions that comprise the tetrad are as follows:

1. What does any artefact enlarge or enhance?
2. What does it erode or obsolesce?
3. What does it retrieve that had been earlier obsolesced?
4. What does it reverse or flip into when pushed to the limits of its potential?[23]

The first question posed by the methodological approach of the Tetrad is focused on what does an artefact (such as regulatory schemes) improve upon.

The second question posed by the methodological approach of the Tetrad explores what the artefact will mitigate – such as legal uncertainty.

The third question posed by the Tetrad focuses on what the artefact will retrieve that has subsequently been lost from the environment, such as free and accessible use of rivalrous areas of Earth's orbital environment.

The fourth question explores what the artefact will reverse when pushed to the limits of its potential.

The authors have used this methodological approach as their jurisprudential analysis of space law and its application to a number of below proposed potential regulatory schemes to mitigate the risk of legal uncertainty in the regulation of rivalrous areas of Earth's orbital environment.

4. Jurisprudential Approaches

4.1. Overview

Four jurisprudential approaches were identified as being potential means for a regulator such as the ITU-R manging rivalrous spaces within Earth's orbital environment and mitigating anti-competitive conduct. These four proposed schemes included licencing, flat-rate allocation of orbital 'slots' to nations,

23 P. 9, Ibid, 21.

regulation of orbital planes contingent on technological need and a merits review process for application and use of orbital environments.

The first approach was creation of licencing schemes where private sector entities and governments may bid on an open market for various orbital planes and orbital shells. Such a market scheme may also have licencing requirements for specific use and duration of the use of those orbital environments.

The second approach was to allocate a flat-rate of slots for all nations within the rivalrous areas of Earth's orbital environment. These slots may be equally divided between all countries, or alternatively divided by population or GDP. Under such a scheme, nations that are not presently undertaking space activities may transfer their rights for a limited duration to other countries on a contractual basis.

The third approach was to dedicate different rivalrous orbital environments for specific technological undertakings. Such a scheme may allow for the optimisation of use of space for differing technological needs.

The fourth and final approach was a merits review process where all rivalrous areas of space were managed by a tribunal or similar arbitration body such as the ITU-R. The fourth option may be more favourable than the preceding three as it allows for a case-by-case review of each specified purpose to mitigate risk of underutilisation of the rivalrous areas of Earth's orbital sphere.

4.2. Licencing Schemes

Using the Tetrad, we found that introducing a licencing scheme for the rivalrous use of Earth's orbital environment would effectively reverse the fist-mover advantage risk in the monopolisation of some parts of space. In addition to this, a licencing scheme would also remove legal uncertainty related to the use of these rivalrous environments.

We also found that a licencing scheme would mitigate anti-competitive conduct between private enterprises by allowing new entrants to market to effectively 'bid' on rivalrous areas.

Notwithstanding these benefits, while assessing what a licencing scheme may retrieve through the use of the Tetrad, we was found that some companies with established satellite constellations may have significant revenue streams to effectively *outbid* new entrants to market, thereby sustaining monopolistic practices by rendering these licences unaffordable.

4.3. National Allocation of Slots

We next found that flattening the allocation of orbital 'slots' across all nations equally, or based upon either population or GDP held some advantages. For example, the risk of monopolistic practices surviving the licencing scheme proposal in part 4.2 of this paper would not survive this approach.

In addition to this, the first-mover advantage was effectively reversed as was also any legal uncertainty accompanying it. In addition to this, such a scheme was found to effectively enhance the even distribution of 'slots' in rivalrous areas of Earth's orbit to provide an equitable means of access to space.
However, through using the methodological approach, the authors noted that it may create some unfair trading practices between nations and their associated private entities as some of the allocated 'slots' may be more favourable than others. For example, LEO altitude can be less favourable at higher altitudes due to exposure to the Van Allen belt that may disrupt satellite componentry. Additionally, lower altitudes may be more favourable for some purposes such as internet service and telecommunications due to the reduced latency between the satellites and the ground receivers. Equally, gravitational stability within lagrangian points varies based on the relative position of the spacecraft occupying these regions.
The conclusion of this was that although the flat allocation of rivalrous 'slots' appeared advantageous upon initial investigation, substantial risk remained of providing more favourable areas to some nations, and less favourable to others.

4.4. Priority of Slots for Different Technological Purposes

Prioritising rivalrous areas of Earth's space environment for specific technological uses appeared initially to overcome the issue found in part 4.3 of this paper. This is because higher altitudes may be more favourable for aperture and capture of imagery for mapping and terrestrial weather observations, while lower altitudes may be more advantageous for telecommunication services while reducing latency with ground stations.
In addition to this, prioritisation of rivalrous areas for technological use would effectively accomplish reversing the first-mover advantage and the risk of monopolistic practices forming, while also making any legal uncertainty obsolete in the regulation of these environments.
However – and notwithstanding these advantages – the risk of cartels based on technological priority may form. This may occur where some satellite operators focus on reducing the use of rivalrous areas of the Earth's orbital environment by other industries to ensure greater access for their own technological needs.

4.5. Merits Review Process

Finally, a merits review approach was considered by the authors and found to be most favourable as it would mitigate the risks found in the first three schemes. Such a merits review process may involve an administrative review of applications with a supporting tribunal or arbitration process either by the ITU or UNOOSA in reviewing the use of rivalrous areas of Earth's orbital environment.

Such a merits review scheme may effectively ensure that each application for the use of rivalrous space is undertaken based on the merits of the application as well as the management of the commons. This scheme would also effectively reverse any first-mover advantages from the occupation and use of rivalrous orbital environments, while making legal uncertainty in this domain effectively obsolete. This scheme would also effectively provide international oversight moving forward of the orbital environment, while establishing additional trust in international regulatory organisations.

However, notwithstanding the advantages of a merits review process, risks of administrative tyranny may arise where an appeals process is not also introduced into a merits review scheme, thereby undermining international confidence and its overall enforceability.

5. Conclusions

Continued investigation into the management of rivalrous orbital environments for Earth – both LEO as well as lagrangian points will be required both now and into the future. International oversight will be required, and the ITU has previously been identified as being the optimal organisation to forward an administrative process in this area.

However, whichever approach is taken, the introduction of checks and balances will remain essential to ensure that bad faith acts are mitigated and that the open access of space remains paramount.

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