

Back to the Future: Space Law in a Networked World

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Abstract

Space technologies and their ever-growing innovative practical applications are changing the way humanity functions. This trend towards transformational change and the ‘democratisation’ of space is expected to extensively penetrate into our everyday lives. Currently, space activities are being undertaken by numerous domestic and international operators, which range from owners of a single satellite to corporations planning to operate large constellations of satellites. These NewSpace activities, while offering unprecedented opportunities for humanity in aiming towards a prosperous world, also pose some unparalleled challenges to the foundational norm and objective of international space law – that the ‘exploration and use of outer space shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development’.

In this paper, the authors discuss some of these challenges posed by NewSpace activities, particularly with respect to communications, and propose specific steps to be taken by the international community to maintain and update the international space regulatory framework. Based on three case studies of three intergovernmental organisations – involving the originally constituted structure of INTELSAT and the current structures of INTERSPUTNIK and ARABSAT, this paper describes their appropriateness in maintaining the key above-mentioned objective of international space law.

Introduction

Our world, today, is interconnected, interdependent and globalised, especially due to technological developments combined with expansion

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economic opportunities and relations. The importance of the internet has perhaps grown markedly in 2020 as physical distancing measures adopted due to the present pandemic have resulted in increased online interaction. However, the question is whether the promise of technology to provide unprecedented benefits to humankind will, in the absence of appropriate regulation, lead to a widening of the gap between the developed and developing States and between the 'haves' and 'have-nots'. It is one thing to invent technology and altogether another to regulate it effectively, so that technology may not end up becoming akin to 'Frankenstein's monster'.

Unlike the early Space Age, when most space activities were government-owned, the profile of the space industry has diversified in the last three decades with the phenomenal growth of the private space sector. With the rise of capitalism and the *laissez faire* doctrine in many developed States, the global trend has been towards lesser external regulation and increased internal governance by free market forces. The pressure of the international community, combined with their international commitments, have induced developing States to reduce regulatory control, allow for privatisation, open up markets to foreign competition and enable foreign investments, albeit at times reluctantly so.¹ This has allowed huge corporations, particularly American companies with their enormous financial resources and technological superiority, to leverage themselves and emerge as powerhouses, even replacing government control of (elements of) the space industry in other countries.²

To balance the competing values of commercialisation and the common benefit principle which is foundational norm of space law, this paper evaluates the appropriateness, as a regulatory solution, of the structure and functioning of intergovernmental organisations such as the original International Satellite Telecommunications Organization (INTELSAT) and the present structure of the International System and Organisation of Space Communications (INTERSPUTNIK) and the Arab Corporation for Space Communications (ARABSAT). The paper then proposes these structures as the model to further global justice and respect for the core principles of space law, while promoting the growth of the space industry and space-related technology.

1 Ram S Jakhu, "Safeguarding the Concept of Public Service and the Global Public Interest in Telecommunications" (2001) 5:1 SYBIL 71 at 72, 75.

2 See example, FCC News Release, "FCC Launches New Initiative to Promote Pro-competitive Regulatory Policies in Developing Countries" (2 June 1999).

1. Recent Technological Developments in the Space Industry

Space technology has advanced at a staggering pace in recent years. New ways of manufacturing satellites, including that of small satellites, on assembly lines allow for production at levels at a far faster and cheaper rate. In addition, there are new cost-effective and more efficient launch systems.³ One of the most important breakthroughs in terms of launch technology is reusability, as is being practiced by, for example, Space Exploration Technologies Corp. (SpaceX).⁴ Another game-changing development is the launch of many satellites at once, an example of which was the launch of 104 satellites by an Indian launch vehicle in a single flight in 2017.⁵

The Geostationary orbit (GEO), traditionally used for communication satellites, where links with satellites from a ground station can be established through a fixed base tracking system, introduces a latency factor – approximately a quarter of a second delay. With increased dependency on the internet and the financial (and other) costs associated with delays in transfer of data – for example, in foreign exchange transactions between global banks – low earth orbits (LEO) satellites, an alternative to GEO satellites without the time lag, is becoming more attractive. LEO satellites are not ‘stationary’ over a fixed ground station and have footprints that cover less of earth’s surface than GEO satellites – hence a constellation of LEO satellites is necessary to achieve global coverage. With smaller satellites, cheaper manufacturing costs and better transmission facilities, the ‘mega-constellations’ of satellites are rapidly becoming an instrumental part of the space infrastructure.⁶

Deregulation of the global space industry and the resultant democratisation of space in more recent times is evidenced by developments, such as routine and affordable access to space (reusable transportation systems); the extensive use of new technologies (5G); the merger of numerous technologies into public and private operations; the realization of the internet of things; increasing reliance on artificial intelligence; autonomous or robotic space operations; the push for continuing miniaturisation (from ‘smallsats’ to ‘femtosats’); and the emergence of new national and foreign players. The question, however, is whether this democratisation has, despite the name, only resulted in space power being *even more* concentrated in the hands of

3 Joseph N. Pelton, *Space 2.0 – Revolutionary Advances in the Space Industry* (Springer, 2019) at 6.

4 Vidya Sagar Reddy, “The SpaceX Effect” (2018) 6:2 *New Space* 125 at 125, 131, 132; Jeff Foust, “Debating reusability”, *The Space Review* (8 October 2018) online <https://www.thespacereview.com/article/3583/1>.

5 Department of Space, Indian Space Research Organisation, News Release, “PSLV-C37 Successfully Launches 104 Satellites in a Single Flight” (15 February 2017).

6 Laszlo Bacardi, “Sky-fi dawn of the space internet era”, (2017) 1:11 ROOM 10; Holger Krag, “Mega-challenges for mega-constellations”, (2017) 1:11 ROOM 16.

the few – exacerbating rather than ameliorating the space-divide – and, if the same is true, then how should true democratisation be achieved? Before addressing this question, let us first recall the foundational norms and objectives of international space law.

2. Foundational Norms and Objectives of International Space Law

The formal instruments for the governance of outer space affairs generally seek to balance the competing interests of the developed and developing countries. This is in fact the concept of international justice on which the UN Charter is based. As representatives aptly noted in the United Nations Conference in 1945: “The mountain of man's progress is great and terrible, and they who climb must adjust their pace to the weakest or the entire chain of climbers will go down. Until the weakest link in our human chain is made safe, not one of us is safe.”⁷ We must ensure that justice prevails – “justice in keeping with international democracy, that is to say, justice which gives full recognition to the rights of all countries.”⁸

Ensuring justice is paramount when it comes to space law, which is based on the principle of the benefit of all countries as enshrined in Article I of the *Outer Space Treaty*⁹ that has been ratified by 110 States.¹⁰ The words were carefully negotiated and impose an obligation upon the States parties, who are bound to abide by the terms of a treaty in good faith (*pacta sunt servanda*).¹¹ The words ‘exploration and use of outer space shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development’, reflecting the common benefit principle, were in fact adopted as early as 1963 and form the foundational norm and objective of international space law.¹² It is well-established that space

7 Verbatim Minutes of the Fourth Plenary Session, 28 April 1945, reproduced in Documents of the United Nations Conference on International Organization, San Francisco, 1945, Volume 1: General (United Nations Information Organizations, London, New York, 1945) at 295 (Statement by the Philippine Commonwealth).

8 *Ibid* at 435 (Statement by France).

9 *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, 27 January 1967, 610 UNTS 205 (entered into force 10 November, 1967) [Outer Space Treaty].

10 UNOOSA, *Status Of International Agreements Relating To Activities In Outer Space*, as of 1 January 2020, online <https://www.unoosa.org/documents/pdf/spacelaw/treatystatus/TreatiesStatus-2020E.pdf>.

11 *Vienna Convention on the Law of Treaties*, 23 May 1969, 1155 UNTS 331 (entered into force 27 January 1980), Article 26.

12 *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space*, GA Res 1962 (XVIII), UNGAOR, 18th Sess, UN Doc A/RES/18/1962 (1963). This principle has been reiterated in the *Outer Space Treaty* and *Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account*

technology has become an integral part of our daily lives and is a prerequisite for overall development of a State.¹³ In the early days of the Space Age, especially until around the turn of the century, measures were taken to ensure that to a good extent, benefits derived from the utilisation of space technology were benefitted the developing States too, despite the apparent inequality that existed in terms of space capacity. For example, the establishment of INTELSAT in order to provide satellite communications services to all States, was an USA initiative but was open to all States to participate and utilise the services on a non-discriminatory basis.

3. New International Service Providers

Recent developments in space technology have resulted in new sovereign entrants, such as Bhutan, which launched a Cubesat “BHUTAN-1” in 2018.¹⁴ Universities, non-profit organisations and corporations in both developed and developing States are increasingly involved in a variety of space activities. It is estimated that about 60-70 States now have some form of direct space capability. However, this means that, despite the significant advancement of space technology, even today around 130-140 States do not have direct indigenous space capability and are therefore dependent on foreign operators for access to space.¹⁵

Recently, riding the wave of privatisation and open competition, which rose to prominence under President Roland Reagan and was promoted under the aegis of the World Trade Organisation,¹⁶ effective control of the space sector has moved to a few corporations in a handful of developed countries. With government encouragement, and with their own disruptive technology and capital, these private entities have today emerged as giants of space industry. For example, the American government’s encouragement of the growth of the private space sector has found impetus with announcement of the shutting down of the Space Shuttle program.¹⁷ Further, the space industry has proved

the Needs of Developing Countries, GA Res 51/122, UNGAOR, 51st Sess, UN Doc A/RES/51/122 (1997).

13 ITU, Final Acts the Plenipotentiary Conference (Dubai, 2018), Resolution No 34.

14 Pema Tshewang, “Bhutan’s maiden satellite on its way to space”, BBS (30 June 2018) online <http://www.bbs.bt/news/?p=98870>.

15 Steven Freeland, “Newspace, Small Satellites, And Law: Finding A Balance Between Innovation, A Changing Space Paradigm, And Regulatory Control” in Md Tanveer Ahmad and Jinyuan Su, eds, *NewSpace Commercialisation and the Law* (Montreal: Centre for Research in Air and Space Law, 2017) 107 at 107,108.

16 Jakhu, *supra* note 1 at 82; Francis Lyall, “On the Privatisation of the INTELSAT”, 28:2 (2000) J Space L 101 at 106.

17 Clelia Iacomino and Silvia Ciccarelli, “Potential Contributions of Commercial Actors to Space Exploration”, (2018) 1 *Advances in Astronautics Science & Technology* 141 at 142.

to be a profitable one, with the global space economy currently estimated to exceed \$366 billion annually,¹⁸ with expectation that it will increase to more than \$1 trillion by 2040,¹⁹ giving rise to a further likelihood of control, influence and power of the private sector in outer space activities. As described by Peter Beck, CEO of RocketLab: “[Outer space] has always been a government domain, but we’re witnessing the democratization of it ... [I]t [is] turning into a commercially dominated domain.”²⁰ Democratization of outer space was seen as liberating the space industry from the shackles of governmental control and regulation. The argument is based on the notion that a Leviathan is beyond the control of common human-beings, whereas any common person can establish a start-up and thus, these new space ventures are representative in character.

SpaceX is the most prominent example of a company being involved in manufacturing, launch and operation of a mega-constellation (Starlink), with plans for more than 40,000 operational satellites²¹ and more than 950 satellites are already in orbit.²² Before launch of the satellites belonging to mega-constellations began in 2018, there were only about 1,700 operational satellites in earth orbit:²³ currently there are about 2,787.²⁴ In addition to Starlink, other mega-constellations, like OneWeb,²⁵ the Kuiper project (Amazon), Internet.org (Facebook), the Athena project (Facebook), and the Loon project (Alphabet/Google) propose to launch thousands of satellites to extend their terrestrial operations, mainly in countries where demand for high quality and reliable broadband internet and communications is rapidly increasing.²⁶

18 SIA, *State of the Satellite Industry Report* (June 2020) online <https://sia.org/news-resources/state-of-the-satellite-industry-report/>.

19 Morgan Stanley, “Space: Investing in the Final Frontier” (2 July 2019, online <https://www.morganstanley.com/ideas/investing-in-space>).

20 Ian Tucker, “One man’s mission to conquer space”, Interview, *The Guardian* (11 February 2018).

21 Caleb Henry, “SpaceX submits paperwork for 30,000 more Starlink satellites”, *SpaceNews*, 15 October 2019, online <https://spacenews.com/spacex-submits-paperwork-for-30000-more-starlink-satellites/>.

22 “SpaceX launches 60 more Starlink satellites on 100th Falcon 9 flight”, *Spaceflight Now* (25 November 2020), online <https://spaceflightnow.com/2020/11/25/spacex-launches-60-more-starlink-satellites-on-100th-falcon-9-flight/>.

23 J.-C. Liou, “USA Space Debris Environment, Operations, and Research Updates”, NASA, (29 January- 9 February 2018) at 4, online: <https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20180001749.pdf>.

24 Union of Concerned Scientists, “USC Satellite Database”, online <https://www.ucsusa.org/resources/satellite-database>.

25 In 2020, OneWeb filed for restructuring due to bankruptcy and has subsequently changed ownership.

26 See generally, “Mitigation of Orbital Debris in the New Space Age”, Report and Order and Further Notice of Proposed Rulemaking, IB Docket No. 18-313, online <https://docs.fcc.gov/public/attachments/DOC-363486A1.pdf>.

The question remains, however, as to whether the picture painted by the entrepreneurial giants of a new political-economic regime in space, aimed at profit maximization and the apparent minimization of government interference,²⁷ is really for the common benefit of all. The space activities of huge corporations, while potentially offering unprecedented opportunities for humanity, also pose some unparalleled challenges to national and international legal systems, including space law. Some therefore argue that democratization of outer space has shifted the power from governments to a few private corporations, mostly headquartered in developed countries.²⁸ Irrespective of whether this claim goes too far, the fact remains that this shift has to some extent deprived the “have nots” of access to space (technology) and thus challenged the foundational norm of traditional international space law.

4. Implications and Challenges

The mega-constellations are mostly aimed at providing broadband internet, data communications and to extend coverage to remote areas. This brings us to the debate on “data”, which is some claim as representing the currency of the new age.²⁹ We are transitioning to a new economy built on data, as individuals and firms with expertise in using data create new goods and services, and are increasingly using data to solve complex problems.³⁰

Firms with significant computing power and large capital investments to exploit big datasets are better positioned to extract and utilize data to create new products and services than others, creating an asymmetry.³¹ Large entities such as Google, Amazon, Alibaba and Tencent have an advantage. The more data they have, the more easily they can use algorithms to transform raw data into new value-added data products. These new products and services generate even more data, which, in turn, further perpetuates the market power of these firms.³² Most firms transitioning to this new data-driven economy are in middle income and wealthy countries, and it is estimated that 95% of the industry value is being captured by the top 10

27 Victor L. Shammass and Tomas B. Holen, “One giant leap for capitalistkind: private enterprise in outer space”, (2019) 5:10, online <https://doi.org/10.1057/s41599-019-0218-9>.

28 Lyall, *supra* note 16 at 106-109.

29 Tom Pendergast, “The Next Cold War Is Here, and It's All About Data”, *WIRED* (28 March 2018), online <https://www.wired.com/story/opinion-new-data-cold-war/>.

30 Susan Ariel Aaronson, “Data is a Development Issue”, CIGI Papers No. 223 — July 2019 at 1.

31 *Ibid.*

32 Steven Weber, “Data, development, and growth” (2017) 19:3 *Business and Politics* 397 at 399-407.

producing countries, with the top 20 companies by valuation being either American or Chinese.³³

Developing countries are often end-users of technology, rather than being involved in its development and production.³⁴ As technological development exacerbates the divide between the end-users and operators, in addition to creating an oligopoly and further economic divisions, operators earn significant usage fees.³⁵ In addition, many developing countries have weak data protection laws, as they often venture into new technologies without fully understanding the implications, due to lack of specialized personnel.³⁶ This makes it easier to obtain data from developing countries, without providing them with the benefit of that data, which is obtained from their citizens.

Further, data manipulations are carried out by the companies with access to big datasets. An example is the alleged election manipulations by social media, whose coverage has expanded extensively and even to remote areas. The 2019 parliamentary election in India is dubbed the ‘WhatsApp election’.³⁷ Social media is also being blamed for facilitating, or at least not controlling, incitement and spread of gender-based violence or religion-based hatred to its billions of users.³⁸

With mega-constellations becoming the norm and the scale of communications data growing exponentially, the asymmetry will only increase. One pertinent question is how to return sovereign power back to those countries from where the data is sourced. For example, it has been argued that INTELSAT came into being as an intergovernmental organization, and not a solely US-based entity, because access to the European market was used as a weapon to combat a US monopoly.³⁹ Unless power is given to end-users, some would suggest that we are simply returning to the era of colonization in another guise. We suggest that, to ensure that outer space is used for the benefit of all States and to combat the so-called

33 Aaronson, *supra* note 30.

34 *Ibid.*

35 Jakhu, *supra* note 1 at 74-75.

36 Muli David Tovi and Mutua Nicholas Muthama, “Addressing the Challenges of Data Protection in Developing Countries”, (2013) 1:1 *European J Computer Science & Information Technology* 1 at 1,2.

37 Madhumita Murgia, Stephanie Findlay and Andres Schipani, “India: the WhatsApp election,” *Financial Times* (5 May 2019), online <https://www.ft.com/content/9fe88fba-6c0d-11e9-a9a5-351eeaf6d84>; Billy Perrigo, “How Volunteers for India's Ruling Party Are Using WhatsApp to Fuel Fake News Ahead of Elections”, *Time* (25 January 2019), online <https://time.com/5512032/whatsapp-india-election-2019/>.

38 Zachary Laub, “Hate Speech on Social Media: Global Comparisons,” *Council on Foreign Relations* (7 June 2019) online <https://www.cfr.org/background/hate-speech-social-media-global-comparisons>.

39 Lyall, *supra* note 16 at 103.

modern day colonization, careful consideration be given to the adoption of a revenue-sharing model in which the developing States and their local businesses have a say.

5. Search for a Model: Back to the Future

With regards to space law, the question is how do we balance commercialization and the rapid development of space technology with the common benefit principle and multilateralism? Is it possible to earn a profit while catering to the interests of all? As a historian of modern times puts it: “[w]e are still in the nihilist moment of disillusionment and anger, after people have lost faith in the old stories but before they have embraced a new one.”⁴⁰

One of the ways forward could be to look back at the past. At the beginning of the Space Age, an innovative venture tried to reconcile these apparently contradictory principles. INTELSAT was a profitable intergovernmental organization that provided telecommunications facilities to almost all countries of the world. Similar organisations such as INMARSAT, EUTELSAT, INTERSPUTNIK and ARABSAT subsequently emerged into being. INTELSAT, INMARSAT and EUTELSAT have since been privatised, though the erstwhile INTELSAT model is still being emulated by INTERSPUTNIK and ARABSAT. We examine whether the original INTELSAT model is appropriate for space governance today, especially with regard to the provision of international satellite communications.

5.1. INTELSAT

INTELSAT was the first and the most extensive satellite telecommunications system to be established, with over 140 member States (and their public and private entities) and more than 200 States and territories as consumers.⁴¹ It singlehandedly facilitated approximately two-thirds of the world’s overseas public telecommunications services, until it was privatized in 2000-2001.

INTELSAT was established to carry out design, development, construction, establishment, operation and maintenance of the space segment of the global commercial telecommunications satellite system,⁴² and to provide commercial

40 Yuval Noah Harari, *21 Lessons for the 21st Century* (London: Jonathan Cape, 2018) at 17.

41 “Towards Competition in International Satellite Services: Rethinking the Role of INTELSAT”, *The White House*, online <https://clintonwhitehouse4.archives.gov/WH/EOP/CEA/html/paper.html>.

42 *Agreement relating to the International Telecommunications Satellite Organization “INTELSAT”*, 20 August 1971, 1981 UNTS 22 (entered into force 12 February 1973), [“INTELSAT Agreement”], Article II(a).

services to all States on a non-discriminatory basis.⁴³ It was formally established between 1971-1973, although it had already begun to operate under an interim agreement since 1964. INTELSAT was governed by: (a) the *INTELSAT Agreement*; and (b) the *INTELSAT Operating Agreement*.⁴⁴

INTELSAT's constitutive documents were concluded through a multilateral process and were open for signature by all States. Each State Party was required to sign or to designate a public or private telecommunications entity to sign the Operating Agreement ("Signatory").⁴⁵ The Signatories were the managers, primary customers, suppliers of capital and beneficiaries of the return on capital arising from INTELSAT activities and were generally the reseller of INTELSAT's services within their countries.⁴⁶ INTELSAT was entrusted with a juridical personality, separate from its member States and not subject to their jurisdiction.⁴⁷

It was novel that an intergovernmental organisation was created to provide essential services to the entire humanity, rather than being an international consultative organisation, as was and largely still is the norm. The object of INTELSAT was to implement the foundational space law principle of common benefit, as is evidenced in the preamble to the *INTELSAT Agreement*, which provides that "[c]onsidering the principle set forth in the 1961 Resolution 1721 (XVI) of the General Assembly of the United Nations that communication by means of satellites should be available to the nations of the world as soon as practicable on a global and non-discriminatory basis." The preamble to the *INTELSAT Agreement* specifically refers to Article 1 of the Outer Space Treaty and reaffirms that outer space shall be used for the benefit and in the interests of all countries.⁴⁸

INTELSAT was aimed at providing the most advanced technology available, as well as the most efficient and economic facilities possible, consistent with

43 *INTELSAT Agreement*, Article III. It is pertinent to note that the USA domestically implemented UN Resolution 1721 (XVI) by adopting national legislation for the creation of INTELSAT. Under Section 102 of the US "Communications Satellite communications Act of 1962" (Public Law 87-624 of Aug. 31, 1962), US Congress declared the policy of the United States to establish a commercial communications satellite system "which will serve the communication needs of the United States and other countries, and which will contribute to world peace and understanding." Moreover, it was proclaimed that the "In effectuating this program, care and attention will be directed toward providing such services to economically less developed countries and areas as well as those more highly developed."

44 *Operating Agreement relating to the International Telecommunications Satellite Organization "INTELSAT"*, 20 August 1971, 1220 UNTS 149 (entered into force 12 February 1973) [*INTELSAT Operating Agreement*].

45 *INTELSAT Agreement*, Article II(b).

46 "The Reform of International Satellite Organisations 1995", *OECD Policy Roundtables*, online <https://www.oecd.org/daf/competition/sectors/1920271.pdf>.

47 *INTELSAT Agreement*, Articles IV and XV.

48 *INTELSAT Agreement*, Preamble, Paras 1 & 2.

the best and most equitable use of the radio frequency spectrum and of orbital space.⁴⁹ It was based on the financial principle that each Signatory shall have an investment share corresponding to its percentage of all utilization of the INTELSAT space segment by all Signatories.⁵⁰ Within the Board of Governors, the principal managing body of INTELSAT, each Governor had voting power equal to the investment share of the Signatory/Signatories (s)he represented.⁵¹ The role of State Parties was restricted to high-level general policy matters and did not become a barrier to the commercial operations and interest of the Signatories, who were the investors and could be a private or public entity (or a combination thereof).

In 2000, through the *US Open-Market Reorganisation for the Betterment of International Telecommunications Act*,⁵² INTELSAT was privatized⁵³ or rather, ‘de-internationalized’. This was aimed at opening more markets to competition in satellite services, primarily (at that time) by the USA entities.⁵⁴ Some intergovernmental organisations – INMARSAT⁵⁵ and EUTELSAT⁵⁶ – were similarly privatized around the same time.

Despite the privatisation, the original INTELSAT model was an attempt to combine the best features of both the public and private sector and their combined technical and financial resources. The two-instrument approach has been found to be optimal for collaboration between varied entities and an apt mechanism to “perform a service of global public dimensions but on a sound commercial basis.”⁵⁷ In fact, some scholars have opined that “no other conceivable form of international control in this area could have performed so expertly and at such relatively low cost to its members.”⁵⁸

49 *INTELSAT Agreement*, Preamble, Para 3, Article III(a).

50 *INTELSAT Agreement*, Article V(b); *INTELSAT Operating Agreement*, Article VI.

51 *INTELSAT Agreement*, Article IX(f).

52 *Open-market Reorganization for the Betterment of International Telecommunications Act*, S 376, 106th Cong, 1st Sess (1999).

53 Jakhu, *supra* note 1 at 77-78.

54 Lyall, *supra* note 16 at 106-109.

55 D Sagar, “The Privatization of INMARSAT”, (1998) 41 Proceedings Colloquium L Outer Space 205.

56 “Eutelsat privatisation completed”, Telecom paper, (9 July 2001).

57 Ram S Jakhu, Yaw M Nyampong and Tommaso Sgobba, “Regulatory framework and organization for space debris removal and on orbit servicing of satellites”, (2017) 4 J Space Safety Engineering 129 at 134-135.

58 Alan Beesley, Edward McWhinney, Dallas W. Smythe, Barry Mawhinney and A. E. Gotlieb, “The Legal Problems of International Telecommunications with Special Reference to Intelsat” (Summer 1970) 20:3 UTLJ 287 at 289 (Statement of Edward McWhinney).

5.2. INTERSPUTNIK

Despite the privatisation of INTELSAT and some other intergovernmental organisations, several of contemporary intergovernmental organisations continue to exist even today following the INTELSAT model.

One such organization is INTERSPUTNIK, which was established between 1968-1971. INTERSPUTNIK initially had 9 member States, which has over time increased to its current 26 Member States, representing all geographic regions of the globe.⁵⁹

INTERSPUTNIK's constitutive documents are the *INTERSPUTNIK Agreement*,⁶⁰ the *Protocol on Amendments to the INTERSPUTNIK Agreement*,⁶¹ and the *INTERSPUTNIK Operating Agreement*.⁶² In 2002, the system of Signatories was introduced through the *INTERSPUTNIK Protocol* and *INTERSPUTNIK Operating Agreement*. With the new instruments introduced in 2002, INTERSPUTNIK now follows the two-instrument model of original INTELSAT. The Signatories are telecommunications entities, being public or private and/or Telecommunications Administrations, as appointed by the member States to the *INTERSPUTNIK Agreement*.⁶³

INTERSPUTNIK was established to ensure cooperation and coordination of efforts in the design, establishment, operation and development of the communications system.⁶⁴ It may be noted that the preamble to the *INTERSPUTNIK Agreement* provides that the agreement is adopted pursuant to the 1961 UN General Assembly Resolution 1721 (XVI) and the *Outer Space Treaty*.⁶⁵ Like the *INTELSAT Agreement*, the *INTERSPUTNIK Agreement* is a multilateral treaty that is open to signature by all States.⁶⁶ Similar to the original INTELSAT arrangements, INTERSPUTNIK is a legal entity, separate from its member States and Signatories.⁶⁷

59 "Member Countries", *INTERSPUTNIK*, online <http://www.intersputnik.com/inter-sputnik/countries/>.

60 *Intergovernmental Agreement on the Establishment of the Intersputnik International System and Organization of Space Communications*, (2003) 29 J Sp L 131 [*INTERSPUTNIK Agreement*].

61 *Protocol on Amendments to the Agreement on the Establishment of Intersputnik International System and Organization of Space Communications*, (2003) 29 J Sp L 147 [*INTERSPUTNIK Protocol*].

62 *Operating Agreement of the INTERSPUTNIK International Organization of Space Communications*, (2003) 29 J Sp L 162 [*INTERSPUTNIK Operating Agreement*].

63 Victor S Veshchunov and Victoria D Stovboun, "INTERSPUTNIK International Organization of Space Communications: An Overview" 29 (2003) J Sp L 121 at 123-124.

64 *INTERSPUTNIK Agreement*, Article 1(2).

65 *INTERSPUTNIK Agreement*, Preamble, Para 4.

66 *INTERSPUTNIK Agreement*, Article 2; *INTERSPUTNIK Agreement* as amended by *INTERSPUTNIK Protocol*, Article 1(2).

67 *INTERSPUTNIK Agreement*, Article 8. This has been further elaborated in *Agreement on the Legal Capacity, Privileges and Immunities of the Intersputnik International Organization of Space Communications*, 20 September 1976.

5.3. ARABSAT

ARABSAT is an intergovernmental organisation established in 1976 as an independent corporation within the framework of the 21 League of Arab States for the purpose of developing telecommunications in the region.⁶⁸ Similar to the original INTELSAT, the revenues of the organisation are distributed among the member States according to their shareholding.

Conclusion and Recommendations

How can the above-identified challenges be met by the international community not only to maintain, but also to expand and update the international space regulatory framework in order to further implement the key objectives of the *Outer Space Treaty*? Our recommendation is that careful consideration be given to the feasibility of establishing a model of international organisations, perhaps mirroring to some degree the model of the original INTELSAT and current INTERSPUTNIK and ARABSAT, which should be open to all States, either by way of membership or purchase of services on a non-discriminatory basis. In fact, during the discussions on the establishment of INTELSAT, it was hoped that “INTELSAT may become a model for international organisations established for the uses of outer space”.⁶⁹

Moreover, the creation of such an international organisation structured on a similar basis to INTELSAT should be carried under international agreement(s), which must include some important legal principles designed to protect national security, to prohibit propaganda, election manipulations, racial and religious hatred, and to avoid misuse of personal and commercial data. It must be noted that, although INTELSAT was initially dominated by a limited range of interests, yet it ultimately allowed for developing and small countries to access satellite telecommunications capabilities on a non-discriminatory basis and to financially benefit equitably, whilst enabling the organisation to remain as a commercially profitable entity. These are important principles that are consistent with the underlying sentiments around peaceful exploration and use of outer space for the benefit of all countries.

Of course, there are many conversations to be had on how best to develop ongoing governance structures for our future endeavours in space. A consideration of the establishment of a *sui generis* intergovernmental body to act in that capacity, as briefly outlined in this paper, is one suggestion among several others. Much more work needs to be done in this direction and we look forward to watching and participating in the ongoing debates.

68 ARABSAT, online <https://www.arabsat.com/english/about>.

69 Beesley *et al*, *supra* note 58 at 288.

