New Perspectives for the Making of Space Law: UNIDROIT's Cape Town Approach compared with Traditional UNCOPUOS Law-Making

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Table of contents

Table of contents

List of Abbreviations

1974-BRS:	Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite 1974
AASL	Annals of Air and Space Law
ABM	Anti-Ballistic Missile (Treaty)
ADR	Active Debris Removal
Air & Space L.	Air and Space Law
Alb. LJ Sci. & Tech.	Albany Law Journal of Science and Technology
Am. U. Int'l L. Rev.	American University International Law Review
ARABSAT	Arab Satellite Communications Organisation
ARRA/Rescue Agreement	Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space
ASAT	Anti-satellite Weapon(s)
AWG	Aircraft Working Group
Brook. J. Int'L.	Brooklyn Journal of International Law
Cal. W. Int'l LJ	California Western International Law Journal
Cape Town Convention	Cape Town Convention on International Interests in Mobile Equipment
Case W. Res. J. Int'l L	Case Western Reserve Journal of International Law
CD	Conference for Disarmament
CEOS	Committee on Earth Observation Satellites
CESAIR	Commission of Experts of the Supervisory Authority of the International Registry (of Space Assets)
Chi.J. Int'L	Chicago Journal of International Law
CHM	Common Heritage of Mankind

Abbreviations

CoCoSL	Cologne Commentary on Space Law
Colum. J. Transnat'l L.	Columbia Journal of Transnational Law
Com. LJ	Commercial Law Journal
CONFERS	Consortium for Execution of Rendezvous and Servicing Operations
COP	Conference of the Parties (also Meeting of Parties or MOP)
COSA	(United Nations) Coordination of Outer Space Activities
COSPAR	Committee on Space Research
CPLA	Committee, Policy and Legal Affairs Section
CPR	Common-Pool Resources
CWG	Council Working Group
DBS	Direct Broadcasting by Satellite (Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting, 1982
DIRCO	Department of International Relations and Cooperation (South Africa)
Dublin ULJ	Dublin University Law Journal Ireland
EARC	World (Extraordinary) Administrative Radio Conference, Geneva 1963
EASA	European Aviation Safety Agency
ECOSOC	Economic and Social Council (of the United Nations)
ECSL	European Centre for Space Law
ESA	European Space Agency
ESPI	European Space Policy Institute

Abbreviations

EU/EUC	European Union/Commission
EUMETSAT	European Organization for the Exploitation of Meteorological Satellites
EUTELSAT	European Telecommunications Satellite Organization
FAO	Food and Agricultural Organization of the United Nations
Final Act Space Assets Protocol	Final Act of the Diplomatic Conference for the adoption of the draft Protocol to the Convention on International Interests in Mobile Equipment on Matters specific to Space Assets held at the invitation of the Government of the Federal Republic of Germany and under the auspices of the International Institute for the Unification of Private Law (UNIDROIT) in Berlin from 27 February to 9 March 2012
Ga. J. Int'l & Comp. L.	Georgia Journal of International and Comparative Law
GATT	Agreement on Trade Related Tariffs
GEO	Geostationary (region)
Geo. Wash. Int'l L. Rev.	George Washington International Law Review
GES	Global Exploration Strategy
GGE	Group of Governmental Experts on Transparency and Confidence Building Measures in Outer Space Activities
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GRULAC	Group of Latin American and Caribbean Countries in the United Nations

Abbreviations

GSO	Geostationary-Satellite Orbit
High Tech. LJ	High Technology Law Journal
IAA	International Academy of Astronauts
IAASS	International Association for the Advancement of Space Safety
IADC	Inter-Agency Space Debris Coordination Committee
IAF	International Astronautical Federation
IATA	International Air Transport Association
IBA	International Bar Association
ICAO	International Civil Aviation Organization
ICG	International Committee on Global Navigations Satellite Systems
ICJ	International Court of Justice
ICOC	International Code of Conduct for Outer Space Activities (draft)
ICSID	International Centre for Settlement of Investment Disputes
ICSU	International Council for Science
IFAD	International Fund for Agricultural Development
IGA	International Space Station Intergovernmental Agreement
IGO	International/Intergovernmental Organization
IISL	International Institute of Space Law
ILA	International Law Association
ILC	International Law Commission
ILO	International Labour Organization.

Abbreviations

IMO	International Maritime Organization
IMSO	Advisory committee of the International Mobile Satellite Organisation
INMARSAT	International Maritime Satellite Organization
INTELSAT	International Telecommunications Satellite Organization
Interpol	International Criminal Police Organization
INTERSPUTNIK	International Organisation of Space Communication
Int'l & Comp. LQ/ICLQ	International and Comparative Law Quarterly
IR	International Relations (theory)
ISES	International Space Environment Service
ISO	International Institute for Standardization
ISS	International Space Station
ITAR	International Traffic in Arms Regulations
ITSO	International Telecommunications Satellite Organization
ITU	International Telecommunications Union
ITU-D	ITU Telecommunication Development Sector
ITU-R	ITU Radiocommunication Sector (Recommendations)
ITU-T	ITU Telecommunication and Standardization Sector
J. Air L. & Com.	Journal of Air Law and Commerce
J. Space L.	Journal of Space Law
Law & Bus. Rev. Am.	Law and Business Review of the Americas
Law & Pol'y Int'l Bus.	Law and Policy in International Business

Abbreviations

LEO	Low Earth Orbit (region)
LIAB/Liability Convention	Convention on International Liability for Damage Caused by Space Objects
LSC	Legal Sub-Committee/Subcommittee
LTS	Long-term Sustainability of Outer Space Activities
MAC	Fourth Protocol to the Convention on International Interests in Mobile Equipment on Matters specific to Mining, Agricultural and Construction Equipment
Melb. J. Int'l L.	Melbourne Journal of International Law
MEO	Mid-Earth Orbit (region)
MIFR	Master International Frequency Register
Miss. L.J	Mississippi Law Journal
MOON/Moon Agreement	Agreement Governing the Activities of States on the Moon and Other Celestial Bodies
MRO	Mission Related Objects
NASA	National Aeronautics and Space Administration
NATO	North Atlantic Treaty Organization
NBT	Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water
NEO	Near-Earth Orbit (region)
NGO	Non-Governmental Organizations
NPS	Nuclear Powered Sources (Principles Relevant to the Use of Nuclear Power Sources in Outer Space, 1992
NTB	Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water, 1963
NYU Global	New York University Global

Abbreviations

OOS	On-orbit satellite servicing
OPEC	Organization of the Petroleum Exporting Countries
OPS	Office for Project Services (United Nations)
OST/Outer Space Treaty	Treaty on Principles Governing the Activities of State in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies
OTIF	Intergovernmental Organization for International Carriage by Rail
PAROS	Prevention of an Arms Race in Outer Space
PCA	Permanent Court of Arbitration
PP	Plenipotentiary Conference (for example, PP-18 of the ITU held in 2018 in Dubai)
PPWT	The Draft Treaty on the Prevention of the Placement of Weapons in Outer Space, and of the Threat or Use of Force Against Outer Space Objects
Rail Protocol	Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Railway Rolling Stock (also known as the 'Luxembourg Protocol')
RAS	Radio-astronomy Spectrum
REG/Registration Convention	Convention on Registration of Objects Launched into Outer Space
REMAT	Regulation of Emerging Modes of Aerospace Transportation
RLV	Reusable Launch Vehicle
RPO	Rendezvous and Proximity Operations
Rutgers LJ	Rutgers Law Journal
RWG	Rail Working Group

Abbreviations

SALT	Strategic Arms Limitation Treaty
SARP(s)	Technical standards and recommended practices (ICAO)
SATV	Suborbital Aerospace Transportation Vehicles
SB	Space Benefits Declaration (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 the needs of Developing Countries, 1996)
SDM	Space Debris Mitigation
SDR	Space Debris Remediation
SES	*Société Europeenne des Satellites*
SFW	The Secure World Foundation
SIA	Satellite Industry Association
Sing. J. Int'l & Comp. L.	Singapore Journal of International and Comparative Law
Space Protocol	Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Space Assets
SSA(S)	Space Situational Awareness (System)
SST	Small Satellite Technology
STM	(Global) Space Traffic Management
Stockholm Declaration 1972	Declaration of the United Nations Conference on the Human Environment of 16 June 1972
STSC	Scientific and Technology Sub-Committee/Subcommittee
Suffolk UL Rev.	Suffolk Law Review
SWG	Space Working Group

Abbreviations

TCBM	Transparency and Confidence-Building Mechanisms
TP	Thematic Priority (of UNCOPUOS)
UK	United Kingdom
UN	United Nations
UNCITRAL	United Nations Commission on International Trade Law
UNCLOS	United Nations Conference Law of the Sea
UNCOPUOS	United Nations Committee on the Peaceful Uses of Outer Space
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCC	UN Framework Convention on Climate Change
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNGA Res.	United Nations General Assembly Resolution
UNGA	United Nations General Assembly
UNICEF	United Nations Children's Fund
UNIDIR	United Nations Institute for Disarmament Research
UNIDO	United Nations Industrial Development Organisation
UNIDROIT	International Institute for the Unification of Private Law
Unif. L. Rev.	Uniform Law Review-Revue de droit uniforme

Abbreviations

UNISPACE I	Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, Austria, August 1982
UNISPACE III	Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, Austria, July 1999
UNOOSA	United Nations Office for Outer Space Affairs
UNOPS	United Nations Office for Project Services
UNOV	United Nations Office at Vienna
UNSC	United Nations Security Council
UPU	Universal Postal Union
USA/US	United States of America
USD	United States Dollars
USSR	Union of Soviet Socialist Republics
UW Sydney L. Rev.	Sydney Law Review
Va. J. Int'l L.	Virginia Journal of International Law
VCLT	Vienna Convention on the Law of Treaties
WARC	World Administrative Radio Conference
WCED	World Commission on Environment and Development
WEOG	Western European and Others Group (in UNCOPUOS)
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WMD	Weapons of Mass Destruction
WMO	World Meteorological Organization
WTO	World Trade Organisation

Abbreviations

WTSA	World Telecommunication Standardisation Assembly
YIO	Yearbook of International Organization
ZLW	Zeitschrift für Luft- und Weltraumrecht (German Journal of Air and Space Law)

Introduction

Introduction to Research[1]

Treaties is one of the primary sources of international law.[2] The five outer space treaties[3] were created in the United Nations Committee on the Peaceful Uses of Outer Space (hereinafter 'UN' and 'UNCOPUOS' respectively) in a period stretching just over a decade, and at a time when states, and state agencies, were the only participants in the use and exploration of outer space. Since then many aspects of the space market were privatized and commercialized, and many non-governmental space actors have entered the arena. Yet, despite the pressing need for international legislation, the UN system for more than four decades has proved incapable of producing another treaty on space law. The 9th of March 2012 adoption in Berlin of the Final Act of the Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Space Assets,[4] was hailed as the first space law treaty in (then) 32 years.[5] It was not created in the UN system, but by an independent international/intergovernmental organisation

[1] Dissertation style based on the Style Sheet of the *European Journal of International Law* ('EJIL').
[2] Art. 38(1)(a) Statute of the International Court of Justice ('ICJ'), available at https://www.icj-cij.org/en/statute (last visited 20 October 2019); Treaty Section of the Office of Legal Affairs, *Treaty Handbook* (revised ed. 2012), at iv, available at https://treaties.un.org/pages/Overview.aspx?path=overview/definition/page1_en.xml; (last visited 22 April 2014); M. Evans, *International Law* (4th ed. 2014), at 95; A. Aust, *Handbook of International Law* (2nd ed. 2010), at 5-6; M. Shaw, *International Law* (8th ed. 2012), at 70; J. Starke, *Introduction to International Law* (1989), at 54; I. Brownlie, *International Law* (8th ed. 2017), at 5; A. Cassese, *International Law* (2nd ed. 2005), at 183.
[3] Treaty on Principles Governing the Activities of State in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies 10 October 1967, 610 UNTS 205 ('Outer Space Treaty' or 'OST'); Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space 3 December 1968, 672 UNTS 119 ('Rescue agreement' or 'ARRA'); Convention on International Liability for Damage Caused by Space Objects 1 September 1972, 961 UNTS 187 ('Liability Convention' or 'LIAB'); Convention on Registration of Objects Launched into Outer Space 15 September 1976, 103 UNTS 15 ('Registration Convention' or 'REG'); Treaty on Principles Governing the Activities of State in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies 10 October 1967, 610 UNTS 205 ('Moon Agreement' or 'MOON').
[4] Final Act of the Diplomatic Conference for the adoption of the draft Protocol to the Convention on International Interests in Mobile Equipment on Matters specific to Space Assets held at the invitation of the Government of the Federal Republic of Germany and under the auspices of the International Institute for the Unification of Private Law (UNIDROIT) in Berlin from 27 February to 9 March 2012; Cape Town Convention on International Interests in Mobile Equipment 2001, 2307 UNTS 285 ('Cape Town Convention' or 'CTC'); Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Space Assets 2012 ('Space Protocol'); Recommended short form by R. Goode, *Convention on International Interests in Mobile Equipment and Protocol Thereto on Matters Specific to Space Assets* (2013), at v.
[5] M. Sundahl, *The Cape Town Convention Its Application to Space Assets and Relation to the Law of Outer Space* (2013), at 124.

Introduction

('IGO') the International Institute for the Unification of Private Law (*Institute International pour l'unification du Droit Privé* or 'UNIDROIT').

The new era of growing commercialization and privatization is referred to as NewSpace.[6] New actors, debates, policies and industries are coming to the fore such as space tourism, space settlement and space mining.[7] Large constellations of satellites are a reality, and the proliferation of small satellites triggered by advances in microelectronics and satellite miniaturization have lowered the barriers to entry for many aspiring space actors.[8] A growing number of private sector entities are developing privately funded space launch systems. These hold great promise for utilizing space for socioeconomic benefits on Earth, but at the same time raise many concerns in terms of risks to the safety of space operations, such as orbital congestion, orbital debris, radio frequency interference, and deliberate aggression against space assets. The deployment of large-scale constellations in the low-Earth-orbit ('LEO') and mid-Earth orbit ('MEO') regions pose concern for the space environment.[9] Compounding this is the rapid replenishment schedule where each satellite might need to be replaced every six to eight years, as without systematic deorbiting operations the amount of space debris may increase exponentially. The Interagency Space Debris Coordination Committee ('IADC') and UNCOPUOS were urged to start addressing the emerging issues of an improved Space Situational Awareness ('SSA') system as the first step toward some sort of Space Traffic Management ('STM'). Models of orbital evolution of space debris indicate that the application only of mitigation measures will not suffice to ensure the future access and usability of outer space.[10] Space Debris Remediation ('SDR') aims at removing existing pieces of orbital debris (intact but non-functional and/or uncontrolled objects such as defunct satellites and rocket bodies) through Active Debris Removal ('ADR'). These efforts could be supplemented by On

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[6] S. Hobe, *Space Law* (2019), at 45-47.

[7] E. Weeks, *Outer Space Development, International Relations and Space Law: A method for Elucidating Seeds* (2012), at 20-21; Anonymous, 'Jeff Bezos and Sir Richard Branson may not be astronauts, US says', available at Jeff Bezos and Sir Richard Branson may not be astronauts, US says - BBC News (last visited 23 July 2021).

[8] Large constellations are of particular concern to the Square Kilometre Array radio-astronomy project, see Annexure A: Participation Observation; Amos, 'SpaceX: World record number of satellites launched', available at SpaceX: World record number of satellites launched - BBC News (last visited 25 January 2021); Martinez, 'Development of an international compendium of guidelines for the long-term sustainability of outer space activities', *Space Policy 43* (2018), 13-17, at 13-14.

[9] Editorial, 'Introduction to the special issue on Space Situational Awareness and Traffic Management, *The Journal of Space Safety Engineering* (2019), 63–64.

[10] Popova and Schaus, 'The Legal Framework for Space Debris Remediation as a Tool for Sustainability in Outer Space', *Aerospace 5, 55* (2018), 1-17, at 1, 8-10.

Introduction

Orbit Servicing ('OOS') to improve capabilities of non-functional satellites on orbit through refueling and upgrading in order to diminish break-up risks causing space debris and to extend the satellite's life. Previously extending the life of an active spacecraft in orbit has only been done with human help, for example the Hubble telescope servicing missions conducted by NASA astronauts. In August 2020 a robotic MEV-2 spacecraft travelled to an in-service communications satellite launched in 2004, matched its orbit, docked successfully and extended the life of the satellite.[11] The market for satellite servicing and life extensions is estimated at US $ 3.2 billion over the next decade. End-of-Life Service demonstrations proved commercial technology can be utilised to remove orbital debris.[12]

In spite of Article 11.3 of the Moon Agreement determining that 'Neither the surface nor the subsurface of the Moon, nor any part thereof or natural resources in place, shall become property ….', in this NewSpace the Moon is considered exploitable. The October 2020 Artemis Accords[13] allows private companies to extract lunar resources, and create safety zones surrounding future Moon bases in order to prevent conflict resulting from damage or interference from rivals operating in close proximity.[14] The Artemis Moon programme of the National Aeronautics and Space Administration ('NASA') intends landing humans on the Moon by 2024 and building up a sustainable presence on the lunar south pole thereafter, with private companies mining lunar rocks and subsurface water for rocket fuel.[15] The Russian space agency Roscosmos has signed an agreement with

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[11] Sheetz, 'Northrop Grumman robotic MEV-2 spacecraft, in a first, catches active Intelsat satellite', available at Northrop Grumman MEV-2 spacecraft services Intelsat 10-02 (cnbc.com) (last visited 12 April 2021).

[12] Astroscale's 175kg 'servicer' and a 17kg 'client': See Amos, 'Astroscale space debris removal demo set for launch', available at https://www.bbc.co.uk/news/science-environment-56420047 (last visited 17 March 2021).

[13] Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, Comets, and Asteroids for Peaceful Purposes, available at https://www.nasa.gov/specials/artemis-accords/img/Artemis-Accords-signed-13Oct2020.pdf (last visited 15 October 2020).

[14] Davenport, 'Seven Nations Join the US in signing the Artemis Accords, creating a Legal Framework for behavior in Space', *The Washington Post*, 13 October 2020, available at https://go-gale-com.manchester.idm.oclc.org/ps/retrieve.do?tabID=T004&resultListType=RESULT_LIST&searchResultsType=SingleTab&hitCount=1&searchType=AdvancedSearchForm&currentPosition=1&docId=GALE%7CA638262873&docType=Article&sort=RELEVANCE&contentSegment=ZONE-MOD1&prodId=AONE&pageNum=1&contentSet=GALE%7CA638262873&searchId=R1&userGroupName=jrycal5&inPS=true (last visited 16 October 2020).

[15] Anonymous, 'Trump administration drafting moon-mining agreement', *Mining Engineering vol. 72 Iss.6* (June 2020), available at https://search-proquest-com.manchester.idm.oclc.org/docview/2412496152?accountid=12253&rfr_id=info%3Axri%2Fsid%3Aprimo (last visited 16 October 2020).

Introduction

China's National Space Administration to develop research facilities on the surface of the Moon, in orbit or both.[16] Their International Scientific Lunar Station will carry out a wide range of scientific research including exploration and utilisation of the Moon. The Lunar Crater Radio Telescope project is an early-stage NASA concept for robots to hang wire mesh in a crater on the Moon's far side, creating a radio telescope to help probe the dawn of the universe.[17] In this brave new world, NASA is outsourcing for landers, communications and even spacesuits.[18] Activities such as asteroid and Moon mining and resource use, crewed international Moon bases and commercial space stations, 3D printing using celestial resources, in-orbit satellite servicing, and space tourism, were beyond the imagination of the drafters of the space treaties.[19]

The proliferation of IGO's in the aftermath of World War II ('WWII') is a major phenomenon of our age.[20] IGO's never come into being spontaneously without reason.[21] Their creation is the result of the need felt by states to cooperate within an institutional framework, which arose because states no longer considered themselves capable of performing a given task independently, to cope with the consequences of their increasing interdependence,[22] and in the special task of supervising rule compliance by states.[23] Thus, the development of IGO's was in response to an evident need arising from international intercourse, rather than to a philosophical or ideological appeal to a notion of a world government.[24]

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[16] Anonymous, 'China and Russia to build lunar space station', available at https://www.bbc.co.uk/news/world-asia-china-56342311 (last visited 10 March 2021).
[17] Anonymous, 'Lunar Crater Radio Telescope: Illuminating the Cosmic Dark Ages', available at https://www.nasa.gov/feature/jpl/lunar-crater-radio-telescope-illuminating-the-cosmic-dark-ages (last visited 10 May 21).
[18] Foust, 'Chapter 2: Lunar Exploration as a Service: From landers to spacesuits, NASA is renting rather than owning', *SpaceNews* (June 2021), available at https://spacenews.com/lunar-exploration-as-a-service-from-landers-to-spacesuits-nasa-is-renting-rather-than- (last visited 5 July 2021).
[19] Johnson, 'International law governing outer space activities', in Y. Failat Y and A. Ferreira-Snyman (eds.), *Outer Space Law Legal Policy and Practice* (2017), 1-14, at 13.
[20] Bedjaoui, 'On the Efficacy of International Organizations: Some Variations on an Inexhaustible Theme....', in N. Blokker and S. Muller, *Towards more effective Supervision by International Organizations (Essays in honour of Henry G. Schermers) Volume I* (1994), 7-28, at 7.
[21] H. Schermers and N. Blokker, *International Institutional Law Unity within Diversity* (5th rev. ed. 2011), at para 16.
[22] Schermers and Blokker, *Ibid.*, at para 198.
[23] Blokker and Muller, 'General Introduction', in N. Blokker and S. Muller, *Towards more effective Supervision by International Organizations (Essays in honour of Henry G. Schermers) Volume I* (1994), 1-6, at 2.
[24] P. Sands and P. Klein, *Bowett's Law of International Institutions* (6th ed. 2009), at para 35 ('Bowett's').

Introduction

IGO's are defined as formal, continuous structures established by agreement between members, whether governmental representatives or not, from at least two sovereign states, with the aim of pursuing the common interest of the membership.

The following characteristics must be present in order to qualify as an IGO.[25] First a permanent association of states with lawfull objects and equipped with permanent organs. IGOs were initially defined as inter-governmental organisations to demonstrate that their key characteristic is only states as members. However, the International Law Commission ('ILC') in Art 2 of its Draft Articles on the Responsibility of International Organizations, adopted in 2011, expressly noted that IGOs may include as members other entities.[26] Secondly a distinction, in terms of legal powers and purposes, between the organization and its member states. Thirdly, the existence of legal powers exercisable on the international plane and not solely within the national systems of one or more states. From the legal personality criteria, it can be deduced that the IGO must be established under international law. Lastly, it will almost always be established by treaty in terms of the UN's Economic and Social Council ('ECOSOC') Res. 288 (X) of 22 February 1950 which declared that 'any international organization which is not established by intergovernmental agreement shall be considered as a non-governmental organization for the purposes of these arrangements'. Their constitutive instruments are multilateral treaties with a special character since they are methods for the creation of new subjects of international law.[27] The most important element to be an IGO is the possession of international legal personality. Once established, that IGO becomes a subject of international law and thus capable of enforcing rights and duties upon the international plane, as distinct from operating merely within the confines of separate municipal jurisdictions.

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[25] Classification based on: Union of International Associations (ed.), 'Appendix 3: Types of Organization', *Yearbook of International Organizations Volume 4*, at 617; Aust, *supra* note 2, at 178-179; Shaw, *supra* note 2, at 990; Bowett's, *supra* note 24, at paras 1-028 to 29; Brownlie, *supra* note 2, at 169; Schermers and Blokker, *supra* note 21, at paras 45-46; Akande, 'International Organizations', in M. Evans, *International Law* (4th ed. 2014), 248-279, at 249-251.

[26] Brownlie, *supra* note 2, at 990, 995-997; note a possible exception of proof of another constitutive instrument governed by international law, is indicated on the previous page.

[27] Some authors advanced the legal basis of an IGO can only be an international treaty, others agreed that the most usual form is a multilateral treaty: See M. Ruffert and C. Walter, *Institutionalised International Law* (2015), at paras 9-10 and FN 8, note these authors relied on the Report of the ILC, 55th Session, GAOR 58th Session Supp 10, 38; Brownlie, *supra* note 2, at 678; Schermers and Blokker, *supra* note 21, at paras 34, 35-55.

Introduction

Each IGO is unique for the lawyer, based as it is on its own constituent document and its peculiar political configuration that influences its development.[28] IGOs in the outer space sector, however, can be classified as operational or regulatory.[29] Almost all IGO's subject to public international law are *regulatory* in nature, as they represent efforts by the respective assemblies of member states to establish international fora for the discussion of and cooperation on international legal and political issues with common representation of interests *vis-à-vis* non-member states, and to draft to that end guidelines, rules of the road, recommendations and binding regulations at least for internal purposes, all within the competencies allowed by their member states through their constitutive documents. Outer space law in this regard is not unique, except their specific characteristics may occasionally determine the precise roles and competencies of such IGO, for example the International Telecommunications Union ('ITU') for the system of allocation, allotment and assignment of frequency resources; the World Trade Organization ('WTO') for the liberalization and privatization of outer space sectors; the World Intellectual Property Organization ('WIPO') for the protection of inventions developed in outer space and copyright in remote sensing data; the International Civil Aviation Organization ('ICAO'); the International Maritime Organization ('IMO') for the integration of downstream satellite applications such as navigation and communications; and the European Union ('EU') for its role in the liberalization of satellite services. Notably, UNIDROIT has been categorized as a regulatory IGO recently becoming active in outer space law.[30] Space law has a number of IGOs not so much pooling regulatory resources, but also pooling financial, technical, and scientific resources to undertake activities in the extremely alien, risky, and costly realm of outer space activities. Such *operational* IGOs are constructed similarly to regulatory IGOs but in addition have to accommodate via their internal

[28] For international organisational structures in general see: Judge, 'Chapter Two International Institutions: Diversity, Borderline Cases, Functional Substitutes and Possible Alternatives', in P. Taylor and A. Groom (eds.), *International Organisation* (1978), 28-83, at 28-32; Starke, *supra* note 2, at 608-625; W. Feld, R. Jordan, with L. Hurwitz, *International Organizations A Comparative Approach*, (3rd ed. 1994), at 11-15; Schermers and Blokker, *supra* note 21, at paras 26-27, 39-63, 199-203, 376—381, 552-554, 771-772, 917-924, 1131-1137, 1340-1343, 1387-1388, 1555- 1558, 1628, 1648, 1886-1888, 1983; Shaw, *supra* note 2, at 1166-1168; Amerasinghe C., *Principles of the Institutional Law of International Organizations* (2nd rev. ed. 2005), at 10-12; J. Klabbers, *An Introduction to International Institutional Law* (3rd ed. 2015), at 23-26; Bowett's, *supra* note 24, at paras 1-024 to 1-033, 3-001 to 3-009, 4-001 to 4-003.

[29] von der Dunk, 'International Space Law', in F. von der Dunk and F. Tronchetti (eds.), *Handbook of Space Law* (2015), 29-126, at 270-273 ('International Space Law'); own emphasis.

[30] von der Dunk, *Ibid.* (International Space Law), at 281-282, 272-273.

governance structures not only joint finances and joint operations, but interestingly from a public international law perspective their activities may constitute a special kind of state practice contributing to the development of customary international law. Examples are the European Space Agency ('ESA') plus its progeny European Organization for the Exploitation of Meteorological Satellites ('EUMETSAT') as the only operational IGO in the realm of remote sensing; the International Telecommunications Satellite Organization ('INTELSAT') and International Maritime Satellite Organization ('INMARSAT') prior to privatization; and the International Organisation of Space Communication ('INTERSPUTNIK') and Arab Satellite Communications Organisation ('ARABSAT') operating on regional satellite communications level.[31]

The purpose of this research is firstly to compare, within the context of the international law of outer space, the UNCOPUOS system of public international law treaty-making, by researching the negotiation and drafting of its last treaty the Moon Agreement, and its last two soft law instruments the Space Debris Mitigation ('SDM') Guidelines of the UNCOPUOS[32] and the Guidelines on the Long-term Sustainability ('LTS') of Outer Space Activities of the UNCOPUOS,[33] versus the UNIDROIT method of private international law treaty-making by researching the negotiation and drafting of the Space Protocol (and its framework 'Cape Town Convention').[34] Secondly, to consider the role of IGOs in outer space norm-creation, to classify UNCOPUOS and UNIDROIT as IGOs, and if possible to compare their structures as law-making bodies. Thirdly, to investigate whether the UNIDROIT system of first creating a framework convention whereby the larger issues are arranged in general which is then followed by separate protocols detailing the ambit of rights and privileges in relation to specific industries to suit that particular industry, is more suitable to the modern world. Lastly, whether the UNIDROIT so-called Cape Town approach method of first creating a framework convention, followed by separate protocols in relation to specific industries, which then amend the framework convention to suit each specific industry, is a new method of treaty-making.

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[31] For more detail see von der Dunk, *Ibid.* (International Space Law), 269-330, at 282-307.
[32] ST/SPACE/49 Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space, endorsed by the UNCOPUOS at its 50th session and contained in UN. Doc. A/62/20, annex.
[33] Guidelines on the Long-term Sustainability of Outer Space Activities of the Committee on the Peaceful Uses of Outer Space Endorsed by UNCOPUOS 62nd Session Doc. (12-26 June 2019) A/AC.74.20, at para 163 and Annex II.
[34] Entered into force 2006 in relation to the Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Aircraft Objects 2001 ('Aircraft Protocol').

Introduction

The relevant treaties or UN General Assembly ('UNGA') Resolutions will not be judged, as the intent is to research the process of making outer space law, and not the quality. Thus, the main research problem is: Why did UNCOPUOS, established to make international law of outer space, stop making outer space treaties and why and how did UNIDROIT, established to unify private law, make what is allegedly the first outer space treaty in almost 40 years? The *first subsidiary question* flowing from the main research question is *in relation to UNCOPUOS* which possible solutions do exist to produce new outer space treaties? The *second subsidiary question in relation to space law* is whether multilateral treaty-making is the most appropriate tool for meeting the new needs and requirements of the international space society? For that matter, what does it take to make international rules in space law? Why are soft law rules of increasing importance in space law? *UNIDROIT's* so-called Cape Town approach to treaty-making will be researched under the *third subsidiary question* whether the Space Protocol is space law as claimed? Can it be described as the sixth outer space treaty? In other words, as Sundahl advocated, should there be in addition to the two classic sources of space law, UN outer space treaties and custom, a third sphere to be considered as forming part of the international law of outer space, namely relevant international treaties addressing private law?[35]

It was assumed that it was decided in the late 1950's that the UN is responsible for making space law, but by 2012 this was no longer possible in the UNCOPUOS system, and as a result a private law IGO such as UNIDROIT had to step in to find a solution for dealing with the financing of increasingly commercialized and privatized outer space activities. It was also assumed that there will not be another treaty on outer space from within the current UNCOPUOS system, and the main reason for the UN system failure can be found in the design flaws of UNCOPUOS, in particular its consensus decision-making system.

After the purely speculative phase of space law had passed in the mid-1960's there 'still remains unanswered the fundamental question of chaos or control', whether space would become an arena for power struggles similar to those for territory (for example Antarctica), or whether 'by taking time by the forelock', a radical solution for the problem of control of space would be evolved?[36] Radical solutions did emerge, and authors now have an authoritative point of departure. Thus, the law is not perfect, but it is there. In this

[35] Sundahl, *supra* note 5 (2013), at 123.
[36] F. Lyall and P. Larsen, *Space Law A Treatise* (2nd ed. 2018), at Preface, and relying on C. Jenks, *Space Law* (1965) which was unfortunately not available.

context the theoretical approach to the research commences from the interesting point that many authors refer to an international space law regime,[37] either within the UN framework, or drawn from the field of international relations.[38] This is a useful conceptual tool to draw together the many seemingly disparate activities which are all part of the increasingly hyper-privatized development of outer space.[39] The value of the *regime concept* lies in its ability to describe a myriad of discourses and behavioural patterns in a way which increases our ability to understand how power and politics operate within. The body of an international regime is made up of key actors, norms, laws, policies, industries, and activities, as well as social, behavioural, and institutional practices. Moreover, international law has seen an explosion in empirical work in recent years, in part due to the development in *international relations* ('IR') theory, the objective expansion in the importance and visibility of international law in the 1990's, and the increased role played by international institutions.[40] The central question, which should also be asked in relation to space law, becomes the conditions under which international law is produced and has effects, as well as the actors and mechanisms involved? Political actors today argue that government is inefficient and needs to be replaced by the private sector in order for mankind to conquer space.[41] Over time, as international power relations changed between nations, space law and space policy have also changed to mirror relations.[42] Understanding power relations and who has the power to cause changes in international law, is central to predicting upcoming economic-political trends. Liberal internationalism regards violence as the policy of last resort, advocates diplomacy and multilateralism as the most-appropriate strategies for states to pursue, and tends to champion supranational political structures, such as IGOs (especially the UN).[43] This prevailing form of international cooperation in the 20th century, based on multilateral treaties and often

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[37] Beck, 'The Next, Small, Step for Mankind: Fixing the Inadequacies of the International Space Law Treaty Regime to accommodate the Modern Space Flight Industry', *vol. 19.1 ALB. LJ SCI. & TECH* (2009), 1-37, at 37; and in general O'Brien, 'To Boldly Go. Private Contracts for the Carriage of Persons in Space, Exclusion Clauses and Inter-Party Waivers of Tortious Liability, *D.U.L.J* (2007), 341-373.
[38] Lee, 'Reconciling International Space Law with the Commercial Realities of the Twenty-First Century', 4 *Sing. J. Int'l & Comp. L*. (2000), 194-251, at 205.
[39] E. Weeks, *supra* note 7, at 12-13.
[40] Ginsberg and Shaffer, 'How Does International Law Work?' In P. Cane and H. Kritzer (eds.), *Empirical Legal Research (*2010), 753-781, at 753 -755.
[41] E. Weeks, *supra* note 7, at 12, 17-18.
[42]Raustalia, 'The Architecture of International Cooperation: Transgovernmental Networks and the Future of International Law', *43 Va. J. Int'l L. 1* (2002-2003), 1-92, at 12 and 17-18.
[43] Bell, 'Liberal Internationalism', *Encyclopaedia Britannica,* available at https://www.britannica.com/topic/liberal-internationalism (last visited 29 July 2018).

coupled with IGOs, is under attack.[44] The constituent parts of modern states, especially regulatory agencies tasked with elaborating upon and enforcing the laws that manage complex societies, are increasingly networking with their counterparts abroad, and in this process they are sharing information, ideas, resources, and policies. The chosen vehicle for this new line of cooperation is not the traditional liberal international organization and treaty; instead, it is the adaptable and decentralized *network model* which is 'transgovernmental' because they involve specialized domestic officials directly interacting with each other, often with minimal supervision by foreign ministries, and they are 'networks' because this cooperation is based on loosely-structured, peer-to-peer ties developed through frequent interaction rather than formal negotiation. The notion of 'disaggregated sovereignty' is at the centre of transgovernmental theory.[45] Domestic officials are reaching out to their foreign counterparts regularly and directly through networks, rather than through the accepted kind of state-to-state negotiations.

Lawyers tend to think in terms of providing 'advice' to their clients, who want to achieve something, and lawyers advise them about how to do it.[46] The word 'advice' though does not fully capture what lawyers offer. Lawyers draft contracts or leases or statutes, which are often difficult for clients to understand without assistance from lawyers. Their importance lies, for clients, in what they accomplish, not in their inner workings. Lawyers' advice clients on what is possible to achieve or not possible to achieve easily. It is about the risks attached to the various courses of action lawyers can facilitate, not about how that facilitation works. A better way of characterising the situation is to state that lawyers make things for their clients, thus *law-as-engineering*. Clients want products that help them to achieve their ends, and are interested in their effects and risks, but they are not particularly interested in the detail of how they work. Viewing lawyers as engineers simultaneously captures both lawyer's power (to build or destroy) and their responsibility to exercise their power for the public good.[47] Furthermore, it is the *function of an international lawyer* to provide advice on matters of international law where such advice is likely to be required and thereby shaping the development of international law, for example legal relations between countries, negotiations with other countries, resolving

[44] Raustalia, *supra* note 42, at 2-5.
[45] Raustalia, *Ibid.,* at 205.
[46] D. Howarth, *Law As Engineering,* (2013), at 51.
[47] D. Howarth, *Ibid*, at 211.

international disputes, advice on the implementation of international law into domestic law, advocacy before international fora, and advice on the domestic law of foreign countries.[48] A special art of an international lawyer is the drafting of treaties 'in which disagreement and misunderstandings and concealed intentions are gathered together in verbal formulas upon which all contracting parties are said to "have agreed"'.[49]

This research is based within the realm of the *peaceful uses of outer space*, thus civilian as opposed to military uses of outer space[50] dealt with by the Conference of Disarmament ('CD') established in 1979 to deal with multilateral disarmament issues or rather the prevention of weaponization of outer space[51]

An empirical examination of two particular networks, UNCOPUOS and UNIDROIT, was conducted in order to investigate which organisation's law-making ability is superior.[52] The resulting comparison grid[53] indicates that UNCOPUOS and UNIDROIT are comparable international institutions. First, both were created via international instruments: UNCOPUOS is a UN Committee created via an UNGA Resolution whilst UNIDROIT is a private IGO created via multilateral treaty. Second, both are engaged in international rulemaking. Third, they had comparable member numbers during the negotiation of the chosen instruments: UNCOPUOS had 47 member states at the conclusion of the Moon Agreement, the negotiations of which took 12 years; 69 negotiated the SDM Guidelines over 14 years; and 95 considered the LTS Guidelines over 9 years. UNIDROIT had 63 member states at the Berlin Diplomatic Conference on the Space Protocol, the negotiations of which took 15 years. Fourth, both has a history of collaborating with other IGO's. UNCOPUOS can draw from expertise of specialized agencies such as UN Educational, Scientific and Cultural Organisation ('UNESCO'), Food and Agricultural Organization of the UN ('FAO'), ITU, WTO, Committee on Space

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[48] Bouwhuis, 'The Role of an International Legal Adviser to Government', *ICLQ vol. 61* (2012), 939-960, at 940-942.
[49] Bouwhuis, *Ibid*, at 944.
[50] The South African Foreign Ministry ('DIRCO') typically splits military issues and peaceful uses of outer space different political 'Desks', see Annexure A: Participation Observation.
[51] For more information on militarization of outer space see Tronchetti, 'Legal Aspects of the military Uses of Outer Space' in F. von der Dunk and F. Tronchetti, *Handbook of Space Law* (2015), 331-381; Lyall and Larsen, *supra* note 36, at 443-483; Tronchetti 'A Soft law Approach to Prevent the Weaponisation of Outer Space', in I. Marboe (ed.) *Soft Law in Outer Space: The Function of Non-binding Norms in International Space Law* (2012), 362-386; Ferreira-Snyman, 'Military Activities in Outer Space' in Y. Failat and A. Ferreira-Snyman, *Outer Space Law Legal Policy and Practice* (2017), at 95-118.
[52] Along the method utilised by Raustalia, *supra* note 42, at 7.
[53] See Appendix B: Comparison Table UNCOPUOS vs UNIDROIT.

Introduction

Research ('COSPAR'), International Council for Science ('ICSU'), International Astronautical Federation ('IAF'), International Institute of Space Law ('IISL') and International Law Association ('ILA'). UNIDROIT works with FAO, International Fund for Agricultural Development ('IFAD'), and UNESCO. UNCOPUOS collaborated with NGOs such as Secure World Foundation ('SFW') on the LTS Guidelines. Fifth, the Moon Agreement was the last outer space treaty from UNCOPUOS, whilst the Space Protocol was UNIDROIT's first venture into the outer space realm. Sixth, it was of benefit that UNCOPUOS had collaborated with UNIDROIT on the Space Protocol to a certain extent as it was a single item on the LSC agenda till 2013 and UNIDROIT was allowed to participate as an observer in order to provide annual feedback.

Following the exemplary example provided by Weeks, participant observation methodology was utilized.[54] Direct observation is the primary method of compiling data, but without directly interrogating those involved. The researcher gets invited into an organization and once inside is able to access documents for the purpose of study.

The research goal or 'problem' identified is the dearth of hard law in outer space. It is this issue which is to be researched, analysed, better understood and then hopefully explained, in order to be able to make suggestions for the solution of such 'problem'.

The significance of the research lies in the fact that the need for new and adapted rules of international space law is rapidly growing as our knowledge of outer space continues to expand and technology continues to progress.[55] The development of a new international framework of space law that provides legal clarity, commercial stability and technological adaptability, is a vital and necessary step before our next giant leap in space. Space law had attempted to cater for the regulation of the private or commercial space sector from the outset,[56] nevertheless the UNCOPUOS system had failed to further address in hard law specific issues such as mining activities in outer space,[57] or space tourism.[58]

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[54] Weeks, *supra* note 7, at 13-17; See Appendix A: Participation Observation.
[55] Lee, *supra* note 38, at 205.
[56] Smith, 'Chapter 5 The Principles of International Space Law and their Relevance to Space Industry Contracts', in L. Smith and I. Baumann (eds.), *Contracting for Space: An Overview of Contract Practice in the European Space Sector* (2011), 45-58, at 50 and 54-55.
[57] Johnson, 'Limits on the Giant Leap for Mankind: Legal Ambiguities of Extraterrestrial Resource Extraction', American *University International Law Review* (2011), 1477-1517, at 1481-1482; Herzfeld and von der Dunk, 'Bringing Space Law into the Commercial World: Property Rights without Sovereignty', 6 *Chi.J.Int'L* (2005-2006), 81-99, at 81.
[58] O'Brien, *supra* note 37, at 341.

Introduction

Multilateral space treaty law has been stagnating for a number of years. The Space Protocol, and in particular UNIDROIT's so-called Cape Town Approach to treaty-making, is deserving of further study to see if it can regenerate treaty law in the outer space arena. It also deserves unpacking regarding its relationship with existing space law.

Research was concluded on the following propositions. There is a space law regime. Hard law in the form of treaties is always preferable to non-binding soft law. The UN committee COPUOS is unable to produce any further outer space treaties or amend the existing ones, and consequently it has become ineffective in producing hard space law. UNIDROIT's Cape Town Approach is more suitable to modern treaty-making in space law. The drafting of a treaty is an act of creation, a special art of the international lawyer.

Desktop research of primary and secondary sources was utilized, and both primary and secondary data were examined to gain an in-depth understanding of the key actors responsible for those changes indicated in the hypotheses above. Research was mainly undertaken through the use of hard copies of materials in libraries plus the Internet.[59]

Structure of research. Chapter 1 sets out the basic thesis, the question as to whether UNCOPUOS outer space law-making is still up to date. Does it still inspire to success? The answer is resoundingly in the negative. Chapter 2 discusses the reaction to the initial proposition, namely UNIDROIT's excursion into international space law-making with the creation of the Space Protocol; does it advance space law-making in light of the fact that after 10 years it hasn't received a single ratification? Chapter 3, the synthesis, investigates the middle-ground, whether the UNCOPUOS and UNIDROIT international law-making methodology can be combined. The conclusion is that moving space law-making to ICAO is a possibility, but the UNCOPUOS situation is not quite as dire as in 2012. Lastly, the conclusion briefly examines the conditions governing the making of space law, and what would be required of future international space-law makers.

[59] University of Pretoria; Resources Centre of the DIRCO; University of Manchester; UNIDROIT in Rome; Institute of Air, Space and Cyber Law of the University of Cologne.

Chapter 1: UNCOPUOS International Law-making

UNCOPUOS created an embryonic legal framework for all human activities in outer space and remains the main source for resolutions and treaties on space activities.[60] However, is UNCOPUOS law-making on outer space activities still up to date?

1.1 UNCOPUOS Development

At the dawning of the space age with the launching of Sputnik I there was a tacit understanding between the USA and USSR that the space race had begun, and that both intended using outer space for military purposes.[61] Even so, they reached an understanding that the military use of outer space should be dealt with solely bilaterally, but some minimal normative regulation for the peaceful purposes use of outer space was necessary and should be conducted within the UN.

The subject of outer space was brought to the attention of the UN one month later, when the USSR proposed the establishment of a 'UN Agency for International Co-operation and Research in Cosmic Space' as a clearing house and coordination for national research.[62] The US lodged a counterproposal for an *Ad Hoc* Committee. In 1958 the UNGA included both proposals on its agenda.

The *Ad Hoc* Committee convened in May 1959 without the Eastern bloc states, the UAE, and India which protested to what they saw as Western domination of the Committee,[63] established its Legal and Science and Technology Subcommittees ('LSC' and 'STSC'),[64] decided that in the legislation of space law no analogies to air- or sea law should be made due to the very specific nature of space activities which necessitated special solutions, and recommended the establishment of a

[60] von der Dunk, *supra* note 29, at 274-275; Articles 39-42 UN Charter; Article III OST; note The Outer Space Treaty extends Security Council competence to issue binding decisions to outer space but limited to the maintenance of international peace and security, and fortunately it has never been called upon in the outer space context. The third major UN organ, the ICJ, was never seized of a case concerning space.
[61] Hobe, B. Schmidt-Tedd and K-W Schrogl (eds.) *Cologne Commentary on Space Law Volume I* (2009), at paras 6-1 ('CoCoSL I'), at paras 9-11, author's emphasis.
[62] Available at www.unoosa.org (last visited 13 November 2015); CoCoSL I*, Ibid.,* at para 12; UNGA Res. 1348 (xiii).
[63]CoCoSL I, *Ibid.,* at para 13; UNGA Res. 1472 (XIV) (12 December 1959) 'International co-operation in the Peaceful Uses of Outer Space'; note the UAE is now Egypt.
[64] See also in general N. Jasentuliyana and R. Lee, *Manual on Space Law Volume III* (1981).

permanent committee of 24 Members by and be responsible to the UNGA.[65] The *Ad Hoc* Committee, the first international body to consider the legal implications of space activities,[66] decided that not enough was known about the actual and prospective uses of outer space to make a comprehensive code practicable or desirable at that time. It recognized the multiplicity of juridical problems regarding outer space and that the most useful manner in which it could fulfill its mandate was to select and define problems that had arisen or were likely to arise in the near future in the carrying out of space programs, then divide the problems into two groups, those amenable to early treatment and those not yet ripe for solution. In the light of the experience at the time, it concluded a generally accepted rule of law had to be developed to the effect that outer space is free for peaceful exploration and use by all states. This last conclusion was the *Ad Hoc* Committee's most important statement, which seven years later would be enshrined in treaty format.

The mandate of the Permanent Committee was to review the area of international co-operation, to study practical and feasible means for giving effect to programs in the peaceful use of outer space which could be undertaken under UN auspices, to organize the exchange and dissemination of information on outer space research and the encouragement of national research programs, and the study of legal problems which might arise from exploration of outer space. In 1961 the UNGA, considering that the UN should provide a focal point on international cooperation in the peaceful exploration and use of outer space, requested the Committee, to *inter alia* assist in the study of measures for the promotion of international cooperation in outer space activities.[67] This slotted in well with Article 13(1)(a) of the UN Charter that the UNGA shall initiate studies and make recommendations to encourage the progressive development of international law and its codification. During the UNGA discussions some state members proposed that the ILC should undertake a study of the legal aspects of the use of outer space, but others

[65] Unanimously adopted by UNGA Res. 1472 (XIV), *supra* note 63.
[66] Jasentuliyana and Lee, *supra* note 64, at xii-xiii.
[67] International Cooperation in the Peaceful Uses of Outer Space, Resolution 1721 A and B (XVI) of 20 December 1961; also requested the Secretary-General to maintain a public registry of launchings based on the information supplied by states launching objects into orbit or beyond.

considered that as being too technical to be dealt with by the ILC.[68] Consequently the LSC of UNCOPUOS, and not the ILC as the official organ established by the UN under Article 13(1)(a) of its Charter for the 'progressive development of international law and its codification', was the UN organ principally responsible for developing a law of outer space.[69]

The UNGA repeated the request to study the nature of legal problems which may arise from the exploration of outer space in Res. 1721 A (XVI), but also commended to states certain principles for their guidance in the exploration and use of outer space. UNGA Res. 1802 (XVII) specifically stressed the need for the progressive development of international law on basic legal principles governing the activities of states in the exploration and use of outer space, liability for space vehicle accidents, and assistance to and return of astronauts and space vehicles. At its 18th session, the UNGA adopted by Res. 1962 (XVIII) a Declaration of Legal Principles, after discussion in the LSC. By Res. 1963 (XVIII), the UNGA recommended that consideration should be given to incorporating such principles in treaty format, and to arrange for the prompt preparation of draft international agreements on liability for damage caused by objects launched into outer space and on assistance to the return of astronauts and space vehicles. UNGA Res. 2130 (XX) urged the Committee to develop law for outer space.

In its infancy UNCOPUOS met with the same difficulty as the *Ad Hoc* Committee. The Soviet bloc, still dissatisfied with its composition, wanted the unanimity rule to be applied instead of the majority rule applicable to all subordinate organs of the UNGA. At the insistence of the UK, it eventually met for the first time on 27

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[68] Repertory of Practice of the United Nations Organs, Supplement Original Volume II, Article 13 (1)(a), paras 18-19, available at www.un.org/law/repertory (last visited 14 January 2015). Note this publication contains analytical studies of decisions of the principal organs of the UN under each UN Charter Articles and is prepared by the Secretariat units concerned in accordance with their operational responsibilities and under the guidance of the Inter-Departmental Committee on Charter Repertory. It consists of a comprehensive summary of the decisions of UN Organs, together with review of related material, organized by Charter Articles, and presented in such a way as to throw light on questions of application and interpretation of the Charter which have arisen in practice. It is the only regular institutional review on the application of Charter provisions by UN organs itself, and in particular Article 13 as it relates to UNCOPUOS. It is not publicized regularly, and the following editions do not contain information on UNCOPUOS law-making: Supplement No 1 Volume II, Article 13 (1)(a) (1954-55); Supplement No 2 Volume II, Article 13 (1)(a) (1955-9); Supplement No7 Volume II, Article 13 (1)(a) – (1985-88).

[69] Bin Cheng, *Studies in International Space Law* (1985 Oxford University Press 1997 edition), at 15, 162-163, and FN 33 re Khrushchev letter to Kennedy 20 March 1962.

November 1961 in order to transact certain formal business before its two-year term expired. It then adjourned *sine die.*

The political climate between the two superpowers then changed dramatically.[70] While the Report of the UNCOPUOS was before the UNGA, a five-part draft resolution was submitted by Australia, Canada, Italy and the US, which was subsequently revised and resubmitted by all the UNCOPUOS members including the USSR. Behind this draft resolution stood an agreement between the two superpowers on the proposal for the initial principles of space legislation. It was this underlying agreement which broke the deadlock between them regarding outer space cooperation in the UN, and that caused the final 24-nation draft to be adopted unanimously by the First Committee on 11 December 1961, and then by the UNGA on 20 December 1961 as Res. 1721 (XVI). Part E of the resolution continued the existence of UNCOPUOS, enlarged its membership to 28, and invited UNCOPUOS *inter alia* to 'study and report on the legal problems which may arise from the exploration and use our outer space ...'[71]

Due to lack of agreement on procedural matters, UNCOPUOS first met under the compromise that the neutral state Austria chaired, and resolved on the installation of the consensus principle.[72] Without any voting during the negotiations, the Committee could only proceed if consensus had been reached on the question at hand. Thus, every member of UNCOPUOS received a veto right.

Formally the LSC was established in March 1962 with a mandate to propose legal norms relating to space activities.[73] A split of opinions emerged, and the USSR lobbied for a comprehensive and formal legal document inducing a declaration of the basic legal principles governing the activities of states and a separate international instrument on the return of astronauts. The US wanted a set of principles but only in the form of UNGA Res., thus not a formal document, to cover the limited areas of rescue and assistance to astronauts and space vehicles and

[70] Bin Cheng, *Ibid.*, at 162-163.
[71] Available at https://www.unoosa.org/oosa/en/timeline/index.html (last visited 18 July 2019), with list of 28 states.
[72] Galloway, 'Consensus Decision-making by the United Nations Committee on the Peaceful uses of Outer Space', 7 *J. Space L, 3* (1979), 3-13, at 6; CoCoSL I, *supra* note 61, at para 16 Historical Background.
[73] CoCoSL I, *Ibid.*, at paras 39-40 Historical Background.

liability for space vehicle accidents. The US argued that space technology was still in its infancy, and so it was premature to draft treaties. The LSC could not reach agreement. The impetus for political compromise was provided by the 1963 signing of the Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water ('NBT'),[74] between the US and USSR, with a strong demilitarisation focus, setting a more favourable climate for political compromise. The LSC formulated a set of principles in the form of a draft declaration, which was adopted by UNGA as Res. 1962 (XXVIII) (13 December 1963) Declaration of Legal Principles. This was the international community's first attempt to enact legal principles for outer space activities in a formalised manner.

The process of space law-making concentrated on the enactment of substantive provisions in two stages.[75] Firstly, a series of UNGA resolutions embodying guidelines on the ways and means of international co-operation, and outlining basic principles and rules intended to pave the way to more definitive arrangements. Secondly, followed by a new stage of law-making, namely treaty-making. This was first attained in 1967 with the conclusion of the Outer Space Treaty, which was not only declaratory but confirmed in treaty language the principles and rules already adopted and accepted as law and went further in enriching (space) law by a number of substantive provisions.

UNCOPUOS has grown to 100 members, making it one of the largest Committees in the UN.[76] In addition there are 50 IGOs and non-governmental organizations ('NGOs') with permanent observer status, which now includes UNIDROIT.[77]

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[74] Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water 10 October 1963, 480 UNTS 43.
[75] M. Lachs, in T. Masson-Zwaan and S. Hobe, *The Law in Outer Space An experience in Contemporary Law-Making Reissued on the Occasion of the 50th anniversary of the International Institute of Space Law* (2010), at 126; these predetermined steps are demonstrated by CoCoSL I*, supra* note 61, at LXXV-LXXVI Space Law Development – Overview.
[76] Available at https://www.unoosa.org/oosa/en/members/index.html (last visited 29 April 2020).
[77] Available at https://www.unoosa.org/oosa/en/ourwork/copuos/members/evolution.html (last visited 28 March 2022); A/RES/76/76, UNGA Res., 9 December 2021, International Cooperation in the peaceful uses of outer space, at para 42; note the SKAO also became a Permanent Observer at same time, see Appendix A: Participation Observation.

The initial development of the United Nations Office for Outer Space Affairs ('UNOOSA') is closely linked to that of the UNCOPUOS.[78] In 1993 the activities relevant to the peaceful exploration and uses of outer space were transferred to the responsibility of the United Nations Office at Vienna ('UNOV'), the representative office of the Secretary-General in Vienna.[79] This relocation included the assumption of substantive Secretariat services for the LSC which previously fell under the Office of Legal Affairs in New York. UNOOSA is now the main node for space affairs within the UN.[80] The status, structure, and main functions of UNOOSA are outlined in three Secretary-General Bulletins on UNOV.[81] UNOOSA is headed by a Director accountable to the UNOV Director-General. Then UN Secretary-General Kofi Anan detailed UNOOSA's core functions from 15 March 2004.[82] It assists UNCOPUOS in its role as a focal point of international cooperation in space activities, acting on behalf of the Secretary-General in fulfilling their responsibilities under the terms of space treaties and the declarations of legal principles of the UN, planning and implementing the UN Programme on Space Applications in particular for the benefit of developing countries by organizing training courses/workshops/seminars, providing technical advisory services to develop indigenous capability, administering long-term fellowship programmes in the fields of space science and technology applications and managing the resources of the Trust Fund of the UN Programme on Space Applications to implement the technical cooperation activities of the Programme.

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[78] UNGA Res. 1348 (XIII) of 13 December 1958, at Paras 1-2; Lyall and Larsen, *supra* note 36, at 13-14; Report of the *Ad Hoc* Committee on the Peaceful Uses of Outer Space, A/4141 of 14 July 1959, at 73, Section D, at Para 13; UNGA Res. 1721 B (XVI), *supra* note 67, at paras 1-3; note by the Secretary-General A/C.5/909 'Financial implications of the draft resolution submitted by the First Committee in document A/5026 of 13 December 1961; UN Administrative documentation: ST/SGB/Organization, Section I/Amend.1 of 1974 - at 4 and 5. The same arrangements were enshrined in ST/SGB/Organization, Section I/Amend.4 of November 1977, at 4 and 5); Section I 'Department of Political and Security Council Affairs', and ST/SGB/Organization, Section: OLA of 17 October 1989 'A description of the functions and organization of the Office of Legal Affairs', at 1 and 4; email Correspondence Sergiy Negoda 14 July 2014, then Legal Liaison Officer UNOOSA.

[79] Available at http://www.unoosa.org/oosa/en/aboutus/history/index.html (last visited 15 May 2014); A/C.5/47/88 'Review of the efficiency of the administrative and financial functions of the United Nations' of 4 March 1993, at 2, 26, 27 and 81.

[80] Lyall and Larsen, *supra* note 36, at 14.

[81] ST/SGB/Organization, Section: UNOV of 6 June 1996, at 3-5; ST/SGB/1998/16 of 30 October 1998, at 3; And ST/SGB/2004/5 of 15 March 2004, at 3-4; note UNOV *inter alia* manages and implements the programmes on the peaceful uses of outer space and on administration and conference services.

[82] ST/SGB/2004/5, *Ibid.* at Sections 2, 6 and 8.

It also provides parliamentary services, including the preparation of scientific, technical, legal and policy studies, to the UNCOPUOS at its annual sessions and to its two Subcommittees and their subsidiary bodies. It assists in the formulation and adoption of legal instruments and standards relating to the exploration and peaceful uses of outer space, and provides Secretariat services to the IADC and meetings of the Fourth Committee of the UNGA on issues relating to international cooperation in the peaceful uses of outer space. It also manages the international space information services, which included maintenance of the UN public register and the dissemination of such information to member states, data and information relating to space science and technology, maintenance of a database for the use of member states and space-related IGOs and NGOs and an Internet home page for public access. It acts as the executive secretariat for periodic global conferences dealing with international cooperation in the use of space technology and to assist in the solution of problems of global significance. Moreover, it has as a task the maintenance of space-related coordination and cooperation with space agencies and IGOs and NGOs. UNOOSA disseminates knowledge on the benefits of space and its regulation via its website,[83] maintains the Register of Space Objects plus various other compilations of space data on behalf of the UN Secretary-General, and from the late 1990's in partnership with other agencies organises various training programmes and conferences on space law and space applications.

1.2 UNCOPUOS Working Method

UNCOPUOS has a broad mandate to review the scope of international cooperation in space activities, and to study practical and feasible means that could be undertaken under UN auspices as well as to give effect to programmes in peaceful uses of outer space.[84] UNCOPUOS is assisted in this by its two permanent Subcommittees, as well as the separate UNOOSA.[85] The STSC and LSC meet annually for two weeks, normally February/March and March/April. At the end of its annual deliberations in June for a 10-day period, UNCOPUOS drafts a report

[83] Lyall and Larsen, *supra* note 36, at 14 and FN 85.
[84] CoCoSL I, *supra* note 61, at paras 14-15 Historical Background; author's emphasis.
[85] CoCoSL I, *Ibid.,* at paras 17-19; note main UNCOPUOS meeting lasts 10, and not 14 days.

with recommendations to the UNGA. Where the text of a draft treaty is finalised, the UNCOPUOS recommends the draft text of treaties to UNGA and adoption of this instrument. The Political Committee of UNGA considers the report before the recommended instrument is adopted by UNGA. Hereby opportunity is provided to all UNGA members, particularly those not belonging to UNCOPUOS, to study and comment; And UNGA adopts a resolution incorporating the text of the recommended treaty in an annex. The UNGA annually adopts a resolution on the report of the UNCOPUOS, normally with limited relevance in norm-making.[86]

UNOOSA serves as the Secretariat for UNCOPUOS.[87] Its competences and mandates are defined by UNCOPUOS member states, whilst the UNCOPUOS competences are defined by the UNGA resolutions creating it and the UNGA Rules of Procedure.[88] Until the end of the 1970's UNCOPUOS reported to the First Committee of the UNGA dealing with disarmament and international security, but now reports to the Fourth Committee of the UNGA which *inter alia* handles special political issues.[89]

As mentioned, UNCOPUOS never operates within a vacuum, but cooperates with other entities and IGOs and draws from their expertise.[90] Various UN Agencies deal with space matters as part of their responsibilities.[91] COSPAR, IISL, and the ILA are also available. The UN Programme on Space Applications assists nations in using space technology for economic, social, and cultural development, for example

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[86] Lyall and Larsen, *supra* note 36, at 40-41, and also list the exceptions considered formal sources of space law and of normative character (certain UNGA Resolutions antedating the outer space, those Declarations or Principles adopted without vote which are the highest form of UNGA Resolution, and advisory resolutions or those giving strong encouragement are of lower status as it does not set out principles but still indicate desirable lines of conduct).
[87] Available at https://www.unoosa.org/oosa/en/members/index.html (last visited 29 April 2020).
[88] Correspondence with Sergiy Negoda, then Legal Liaison Officer of UNOOSA 14 July 2014; note it proved not possible to trace these old UN documents.
[89] The UNGA main committees are: First Committee (Disarmament and International Security), Second Committee (Economic and Financial), Third Committee (Social, Humanitarian and Cultural) and which also deals with human rights, Fourth Committee (Special Political and Decolonization) with a variety of political subjects not dealt with by the First Committee, Fifth Committee (Administrative and Budgetary), while the Sixth Committee (Legal) deals with international legal matters: See I. Roberts, *Satow's Diplomatic Practice* (7th ed. 2017), at para 23.12 ('Satow's)'). Also available at https://news.un.org/en/story/2012/10/423722 (last visited 30 April 20).
[90] Lyall and Larsen, *supra* note 61 at 12-13.
[91] See Introduction to Research *supra*, but in general these are the ITU (radio), World Meteorological Organization ('WMO' - remote sensing), ICAO (aircraft), International Labour Organization ('ILO' - labour), WIPO (intellectual property), FAO (food), and UNESCO (arts and culture).

the Interagency Meeting on Outer Space Affairs (UN Interagency Coordination Group which is part of the UN Coordination of Outer Space Activities 'COSA'). Major matters go to the UN Administrative Committee on Coordination, and the United Nations Conference on the Exploration and Peaceful Uses of Outer Space ('UNISPACE') with their technical fora and preliminary workshops.[92]

The compromise reached on decision-making was the Committee would try to reach agreement by consensus, thus without voting, but if voting is required the decision would be made by majority voting.[93] When the expanded UNCOPUOS met for the first time on 19 March 1962, the Chairman stated that consensus will be the way to proceed.[94] UNCOPUOS therefore had adopted a new dialectic method of consensual decision-making, a procedure which was previously unknown in the UN.[95] Thus the informal procedure of consensus was implemented formally, and would spread to many other multilateral organs.[96] Six months later, during discussion of the draft which eventually led to UNGA Res. 1962 (XVIII), the US delegate to the UNCOPUOS hinted that the Committee should revert to the normal majority rule of the UN organs but the Soviet delegate emphasized that there must be 28 signatures, and without the agreement of the US it is impossible to resolve such a problem.[97] The USSR, being in the minority, had wanted the unanimity rule to be applied as this was associated with the right to veto, whereas achievement by consensus was a non-voting method of procedure.[98] The process of achieving a

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[92] UNISPACE I (1968), UNISPACE II (1982) and UNISPACE III (1999) were directed to the development of space activities, encouraging the spread of space technologies, and the benefit of space applications in particular for developing nations. UNISPACE+50 (2018) *inter alia* reaffirmed the unique role of the UNCOPUOS for developing international space law; see Resolution 'Fiftieth anniversary of the first United Nations Conference on the Exploration and Peaceful Uses of Outer Space: space as a driver of sustainable development', available at http://www.unoosa.org/res/oosadoc/data/documents/2018/aac_105l/aac_105l_313_0_html/V1803310.pdf (last visited 13 August 2019).

[93] Galloway, *supra* note 72, at 6.

[94] 'I should like to place on record that through informal consultations it has been agreed among the Members of the Committee that it will be the aim of all Members of the Committee and its Sub-Committees to conduct the Committee's work in such a way that the Committee will be able to reach agreement on its work without need for voting': See A/AC.105/PV.2 (19.3.62), Report of the Committee on the Peaceful Uses of Outer Space (A/5181),at 2; Bin Cheng, *supra* note 69, at 163-164.

[95] Sreejith, 'Whither International Law, Thither Space Law: A Discipline in Transition', *38 CAL. W. INT'L L.J*. (2008), 331- 384, at 341.

[96] Jasentuliyana and Lee, *supra* note 64, at xiii.

[97] A/AC.105/PV.15 (14.9.62), Report of the Committee on the Peaceful Uses of Outer Space (A/5181), at 28.

[98] Jasentuliyana and Lee, *supra* note 64, at xiii; Bin Cheng, *supra* note 69, at 163.

consensus can continue so that discussion and negotiation are not ended abruptly by a vote which may produce a negative result which no member really wants. The USSR had in mind to ensure that no conclusion could or would ever be reached against its wishes.[99] Probably the most widespread explanation for the development of decision-making by consensus is the expansion of membership following decolonization.[100] Developing countries obtained large voting majorities in global organizations, and the solution was consensus which reconciled the apparently irreconcilable. Like unanimity it fully respects sovereignty and in common with majority voting it fully considers the interests of the majority, yet in the last instance it acknowledged differences in power and interests between states.

Nonetheless, consensus as a form of decision-making was never specifically defined. It is achieved by patient negotiation in reconciling different viewpoints until reaching a point where no member objects to the result.[101] In the absence of a formal definition, it is instead referred to as the 'no objection procedure' whereby the chair, sensing that agreement has taken substantial form, states 'if there is no objection, it is so decided'. Consensus was also seen as a form of unanimity, but it is no longer necessarily a numerical unanimity, nor even necessarily a decision *nemine contradicente*, one without a dissenting vote, as no vote is taken.[102] What it does mean is that no decision will be taken against the strong objection of any member, in particular not without the concurrence of any member that really matters. In other words, it requires the unanimity of the dominant section in a given situation. It is a subtle way of passing the rigid one-state one-vote rule. It was further described it as a multilevel negotiating structure whereby the big powers negotiate first in their capital cities; once their common interest takes place a 'corridor negotiation' easily brings others under the umbrella.[103] This process was generally dubbed 'higher-level consensus', and by the time the issue under consideration reaches the negotiation room, consensus has been secured. On the other had it was seen as a form of agreement reached without a vote, which does not imply

[99] Bin Cheng, *Ibid.*, at 164.
[100] Schermers and Blokker, *supra* note 21, at para 784.
[101] Galloway, *supra* note 72, at 3-4; author's emphasis.
[102] Bin Cheng, *supra* note 69, at 164.
[103] Sreejith, *supra* note 95, at 342-343.

unanimity as absence of dissent is different from assent.[104] This was seen as a wise decision because no solution which is not acceptable to the two space powers can be implemented. Abstention from discussion of a point is not taken to imply dissent, and thus an individualistic interpretation of the particular language may therefore be passed over unnoticed or even concealed from other parties. To some it literally meant 'common feeling' or 'concurrence of feelings'. Not surprisingly, in the context of decision-making in IGOs it is often defined in a negative way namely the absence of any objection.[105]

In early UNCOPUOS, the Indian delegate to UNCOPUOS, when there was a hint of a possibility of returning to the majority principle, defended the decision to follow the procedure of consensus,[106] apparently voicing a general sentiment as the question only cropped up again 20 years later, during which time consensus had become the foundation upon which the UN had built substantial achievements in the field of outer space.[107] Thus, the consensus procedure remains an informal procedure, and was departed from in UNCOPUOS and UNGA only in the case of the Direct Broadcasting Principles by Satellite ('DBS' Principles), adopted by the UNGA on 10 December 1982 by 107 votes to 17 with 13 abstentions.[108] This was divisive, and in voting against the draft of the Resolution in the UNGA Special Political Committee the US stated that never before had a voting majority been requested to adopt principles regarding activities on outer space which had exceeded consensus.[109] As almost all the states whose practice it might affect had abstained or voted against, this UNGA Res. is in general considered to be without significant effect.[110] Ironically, DBS may have strengthened the practice of

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[104] Lyall and Larsen, *supra* note 36, at 17.
[105] Schermers and Blokker, *supra* note 21, at para 772.
[106] A/AC.105/PV.13 (13.9.62), Report of the Committee on the Peaceful Uses of Outer Space (A/5181), at 7 FN 42 references to Polish and Soviet statements.
[107] Bin Cheng, *supra* note 69, at FN 43 statement by US delegate to UNGA Special Political Committee to explain why USA voted against the draft which eventually became UNGA Res. 37/92 Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting (22.11.82).
[108] UNGA Res. 37/92, *Ibid.*; Bin Cheng, *Ibid.*, at 165.
[109] UNGA Res. 37/92, *Ibid.*; at 10.
[110] Lyall and Larsen, *supra* note 36, at 17.

consensus within UNCOPUOS, because an UNGA Res. is not international legislation and can be rendered ineffective by contrary voting.

As the use of consensus as a method of decision-making in UNCOPUOS proved remarkably successful in bringing about legal agreement for international space cooperation, it was promoted as a highly desirable way of achieving international accord.[111] Several reasons were advanced on why UNCOPUOS and its Subcommittees were successful in using the consensus decision-making method.[112] At the beginning of the space age there was a strong and prevailing motivation for international cooperation and agreement because of the realization that space science and technology could be used for peace and war. To promote peaceful purposes and avoid hostile conflicts was a unifying objective for those planning guidelines for the future. So strong was the motive to use outer space for the benefit of all mankind that claims of sovereignty, normally the most critical of issues, could be prohibited by treaty. The nature of space science and technology contributed to emphasise on peaceful uses, as satellites encircled the Earth every 90 minutes in orbits which disregarded national boundaries and emphasized the necessity for international space cooperation. Problems identified as likely to arise in the future were multidisciplinary and involved the integrated analysis of many factors: Scientific, technological, political, economic, legal, and cultural. It takes time to figure out how best to handle such problems and the process of consensus is attuned to time-consuming analysis. UNCOPUOS was outstandingly successful in their choices of chairpersons of the Committee and the two Subcommittees which played a key role in the consensus process. They were sensitive to group psychology in sensing when a subject is ripe for agreement, not dictatorial in forcing their own position on the group and gained the respect of all members in recognizing objectivity in perceiving varying viewpoints. Moreover, the Committee's membership, for the longest period of its history, was small enough to be viable and facilitate personal contacts and negotiations. Achieving agreement by consensus requires a give and take in negotiations. When issues are presented

[111] Galloway, *supra* note 72, at 3-5; note she further analysed the positive psychological effect when members of a group feel together with sympathy for differing viewpoints, motivated by a desire to bring about harmony in their collective judgment.
[112] Galloway, *Ibid.*, at 11-13.

with sufficient margins to allow for developing a common ground, the time of negotiation is shortened. Irreconcilable elements which are sharply drawn can result in unyielding positions which frustrate the achievement of collective group judgment. Methods were developed to facilitate the consensus procedure, for example working groups for informal discussions of perplexing matters which may set up mini-working groups for even more informal consideration of difficulties in identifying elements of problems or precise text, or square bracketing to indicate disagreement. Within UNCOPUOS a proposed text is negotiated and revised until all are willing to accept it in the mind of the relevant Subcommittee.[113]

The use of consensus apparently did not necessarily result in the adoption of the least common denominator on which agreement could be reached on insignificant matters of low-level concern, and instead the most important issues were decided and made a part of international law.[114] An example is the Liability Convention where four delegations (Canada, Iran, Japan and Sweden) reserved their positions on the substance of the text because it omitted proposals they favoured for full compensation and binding decision of the Claims Commission. Nonetheless, their reservations did not constitute an objection to forwarding the text to the UNGA, where they reiterated their positions in the First Committee and then abstained from the UNGA vote. The use of consensus as a method of international cooperation, requires patience and consideration being exercised rather that resort to procedures which could obstruct attainment of some desired objective.

Others gave a more mixed review on the use of consensus in UNCOPUOS.[115] The advantage of consensus is that it facilitates compromise, and in the case of treaties parties are more likely to ratify. It also means that space-competent nations will not get what they want from UNCOPUOS without the consent of the space-incompetent, while the latter will not get their interests represented without the consent of the space-competent. The consensus method may result in ambiguity,

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[113] Galloway, *Ibid*, at 17.
[114] Galloway, *Ibid.,* at 7. Note Iran later ratified the Liability Convention, and accession instruments were deposited by Canada and Sweden; Japan did ratify eventually; see A/AC.105/C.2/2019/CRP.3* Status of International Agreements relating to activities in outer space as at 1 January 2019, available at http://www.unoosa.org/documents/pdf/spacelaw/treatystatus/AC105_C2_2019_CRP03E.pdf (last visited 30 April 2020).
[115] Lyall and Larsen, *supra* note 36, at 16-17.

permitting or masking divergent views as to the exact meaning. Not all the participants have equal command of language being used and may misunderstand or mistake meaning. Prolonged negotiations can dilute the resulting legal product into a catalogue of platitudes. As time goes by and more space activities are initiated, compromise between divergent interests becomes difficult, and precision collides with vagueness. With more states active in space, and with the spread of commercialization and private enterprise, some want precise language whilst others seek to fudge.

Due to its central position in the UN, COPUOS is well-placed to make an overall survey of international co-operative efforts in outer space, to provide the basis for objective technical assessments of international programs and their economic and social potential and their legal implications, and to furnish encouragement and support on an international governmental level.[116] This UNCOPUOS working method is rather elaborate. As mentioned, UNCOPUOS is assisted by its own permanent Subcommittees and can call on the experience of the specialized UN Agencies and other bodies invited to participate. Legal work is usually assigned to the LSC, where the discussion of policy and juridical aspects of the subjects concerned takes place, and which has the same membership as the parent Committee. Formal positions are often stated in the LSC or in the main Committee, but detailed negotiations and drafting of legal instruments take place in working groups and drafting groups of the LSC normally open to all members but otherwise private sessions without any records. This informal and private procedure has proved conducive to achieving compromises without having to depart from formally stated positions and is responsible for much of the progress made on ultra-sensitive issues often crucial to the success of the entire negotiations on a given treaty. The disadvantage is that the *travaux préparatoires*, which may become important if normal interpretation methods fail,[117] of UN space treaties do not reflect the full negotiations. The LSC reports on its work to the UNCOPUOS, and it is not unusual for negotiations on outstanding issues to be continued there.[118] Due

[116] Jasentuliyana and Lee, *supra* note 64, at xv-xvi.
[117] O. Dörr and K. Schmalenbach (eds.), *Vienna Convention on the Law of Treaties A Commentary* (2012), at Article 32.
[118] Jasentuliyana and Lee, *supra* note 64, at xv-xvi.

to the time-lapse between the two sessions it was on occasion possible to bring such negotiations to successful conclusion, as states had an opportunity in the intersessional period to review their positions, or internal consultations among states may have narrowed the existing differences, and UNCOPUOS provided the opportunity to settle purely political rather than legal issues. Ostensibly the LSC is a technical committee of jurists, but the main Committee meets more on a political level supported by legal advisers. The main Committee reviews the work of the LSC and sends a report with recommendations to the UNGA. If a draft international instrument is finalized, the main Committee recommends to the UNGA its adoption.[119] Once agreement has been reached by the main Committee on a draft international instrument, the practice is that the Political Committee will not tamper with it. So as a general rule, the route for space law entails matters are first discussed in the LSC, when agreement is reached the draft is submitted to the main Committee meeting, from where it goes to the Special Political Committee and finally to the UNGA's Fourth Committee.[120] However, there are not infrequent exceptions. For example, the proposal that became UNGA Res. 1721 (XVI) of 20 December 1961, the very first substantive resolution relating to the law of outer space, was submitted directly to the then First Committee without going through UNCOPUOS or any of its Sub-Committees, albeit by all members of UNCOPUOS. A second example is UNGA Res. 1962 (XVIII) adopted on 13 December 1963 and containing the Declaration of Legal Principles. When the fourth session of UNCOPUOS opened on 9 September 1963 it was clear that agreement between the two space powers on the basic legal issues was imminent. As a result, the UNCOPUOS held only four meetings and then adjourned, thus leaving the two space powers to continue their negotiations, which were attended and assisted sometimes by a few others at what the French delegate pointedly called the 'secluded places' where it had been negotiated. The draft was to have gone straight to the First Committee of the UNGA and thus bypassing UNCOPUOS. Nevertheless, it was decided that the proposals would 'make a stop' in UNCOPUOS in order to collect the signatures of the other

[119] Jasentuliyana and Lee, *supra* note 64; note these authors utilised 'treaty or agreement' which arguably may have been more relevant in 1981, but nowadays the use of '(international) instrument' is more prevalent in Foreign Ministries: See Appendix A: Participation Observation.
[120] Bin Cheng, *supra* note 69, at 166-167. Note now the Fourth Committee, but previously the First.

UNCOPUOS members, and so the Committee met on 22 November 1963 with the understanding seemingly that no amendment would be entertained. It was adopted unanimously first by UNCOPUOS, then by the First Committee, and finally by the UNGA itself without a word being changed or a comma disturbed. Thirdly, more or less the same happened with the Outer Space Treaty. After a year of rather inconclusive discussions on assistance, liability and priorities, the LSC when its fifth session opened in July 1966 brushed everything aside in order to consider various drafts which the superpowers had just submitted. Although it was possible to comment thereon during the fifth session, the crucial negotiations took place directly between the two superpowers and behind the scenes. Agreement reached, the text was submitted on Thursday, 15 December 1966 by a 43-power draft resolution directly to the First Committee on the Saturday, bypassing UNCOPUOS, and was adopted without objection by the First Committee on Sunday and received the unanimous commendation of the UNGA on the Monday. The 1968 Rescue Agreement is the fourth exception that proves the rule. A text was 'negotiated backstage' by the super-space powers and thrust upon the UN, giving them less than a week to consider and approve it. The LSC had a day-and-a-half and the UNCOPUOS only a Saturday morning to discuss it, yet both succeeded to bring improvements to the draft. This time the First Committee was bypassed, and a number of countries did point out that the consideration by the UNGA of resolutions that had not been examined by one of the Main Committees and not been inscribed on the agenda in accordance with the rules of procedure should not be allowed to become a precedent.

Not surprisingly, the early records of the LSC indicate more time was spend in discussing how it should carry out its work than on the substance of space law, probably because the most critical part of the negotiations was always carried out behind-the-scenes either directly between the two super-space powers or among those being 'the only ones that really matters'.[121] Notwithstanding frequent pleas from the Rapporteur and the Chair, sometimes the really critical issues faced were not discussed. Arguably, that is still the situation in the LSC.[122]

[121] Bin Cheng, *Ibid.*, at 17.
[122] See Appendix A: Participation Observation.

In the beginning the proceedings were published and hence the situation was relatively transparent.[123] Towards the end of the 1960's the LSC turned itself into a Working Group more and more often, the proceedings of which are not published and what transpires becoming opaquer. The result is that is it not really possible nowadays to establish which state said what. For example, with the Moon Agreement the Chair voiced despair at the lack of progress when opening the 22nd Session on 18 June 1979 after more than eight years of discussion, but next there is only a simple entry 15 days later without any record of any discussions that the draft treaty relating to the Moon in the draft Report of the Committee was adopted by consensus without a vote on 3 July 1979.

One of the early controversies was the circle of states which were entitled to become partners to the outer space treaties. During the period of negotiations leading up to the Outer Space Treaty, there were questions regarding Chinese representation plus a number of allies of the one bloc was not recognised by the states of the other bloc and being kept out of the UN, for example East Germany, South and North Vietnam. As the outer space treaties were being drawn up by the UN, the general inclination was to limit them to members of the UN. The US favoured this so-called *UN family* approach. The USSR though, was adamant on opening the treaties to *all states*, thus the so-called principle of universality. This difference of opinion remained one of the major obstacles that held up negotiations of the first outer space treaties, but in the end the US gave in to the USSR.

In general, treaties are binding only upon states that have actually accepted them, by signature (if ratification is not required), by signature and ratification (where treaty requires signatures to be ratified), or by acceptance or accession (where permitted for non-signatories in treaty).[124] All five outer space treaties concluded under the auspices of the UN require signatures to be ratified and permit accession. The controversy surrounding the circle of states entitled to participate explains the unusual procedure for the opening of the earliest treaties for signature and in terms of their final clauses.[125] The UN was not used as the depositary of signatures,

[123] Bin Cheng, *supra* note 69, at 165.
[124] See in general Aust, *supra* note 2, at Chapter 9.
[125] Bin Cheng, *supra* note 69, at 168.

ratifications and accessions, instead this duty was given to not one but three depositary states (USA, UK, and USSR). The first three outer space treaties were opened for signature simultaneously in London, Moscow, and Washington. Thus, countries like Nationalist China and South Vietnam were able to sign and ratify the treaties in Washington, and the German Democratic Republic in Moscow. In contrast the texts of the 1975 Registration Convention and the 1979 Moon Treaty, once approved by the UNGA, became immediately open for signature by all states at UN Headquarters, because Communist China was finally seated in the UN in 1971 and the two Germanys were both admitted in 1973. Each one of the five UN outer space treaties required only five ratifications in order to come into force. Though, the importance attached to the first two outer space treaties and to acceptance of them by the space powers before they can come into force is marked by the requirement that among the first five ratifying states must be the three designated depositaries. This did not apply to the Liability and Registration Conventions, or the Moon Agreement. The procedure itself for opening up the outer space treaties for signature also diverged. The first three were all in the form of draft treaties 'commended' to states by UNGA resolutions, and these treaties then opened at a later date for signature in the depositary states, but the last two were simply opened for signature at the UN Headquarters.

1.3 Development of the Moon Agreement[126]

One of the first concerns at the very beginning of the space age was to prevent the spread of colonialism to outer space.[127] This led first to Paragraph A(1)(b) of UNGA Res. 1721 of 1961 'Outer space and celestial bodies are free for exploration and use by all States in conformity with international law and are not subject to national appropriation'. In 1961, while outer space was probably already considered an international *res extra commercium* not subject to national appropriation just like the high seas, the same could not be said of celestial bodies which being *terrae firmae* had no reason not to be considered as international *res*

[126] For detail on the Moon Agreement see Lyall and Larsen, *supra* note 36, at 169-172; For more technical detail see S. Hobe, B. Schmidt-Tedd, and K-W Schrogl (eds.), Cologne Commentary on Space Law Volume II (2013), at MOON ('CoCoSL II').
[127] Bin Cheng, *supra* note 69, at 160.

nullius susceptible of being reduced to national sovereignty through effective occupation.[128] Article II Outer Space Treaty defined the legal status of outer space and of celestial bodies as *res extra commercium.* Thus, outer space cannot be appropriated by claims of sovereignty, means or use or occupations.[129]

The US requested the UNCOPUOS chair in June 1966 to develop such a draft treaty the same year within the LSC and forward it to UNGA.[130] The US presented a draft treaty to UNCOPUOS in 1966, but discussions in UNCOPUOS only really took off from 1969. Following the US landing on the Moon in 1969, public opinion expected exploration and use of the Moon to increase and that a definitive legal regime for the Moon would soon emerge.[131]

Unbeknownst to most UNCOPUOS Members, a little over six months after the Outer Space Treaty was opened for signature, the Maltese Ambassador to the UN launched an entirely new concept in international law by proposing in August 1967 that the sea-bed and the ocean floor beyond the limits of present national jurisdiction should be declared 'a common heritage of mankind' ('CHM') and as such be used exclusively for peaceful purposes and administered by an international authority for the benefit of all peoples and present and future generations.[132] This CHM concept fired the imagination of particularly developing countries, and was quickly seized on by those delegations interested in the development of international space law. In 1970 Argentina presented to the LSC a draft Agreement on the Principles Governing the Activities in the Use of the Natural Resources of the Moon and Other Celestial Bodies, the first Article which boldly proclaimed that 'the natural resources of the Moon and other celestial bodies shall be the common heritage of mankind'.[133] This first formal proposal for a structured international legal regime on the Moon resulted from the 1969 efforts of Argentina, France and Poland to obtain through UNCOPUOS the formulation of rules which should

[128] Inasmuch as it is neither *terra firma nor* an appurtenance thereof, see Bin Cheng, *Ibid,* at 153.
[129] Aust, *supra* note 2, at 340.
[130] CoCoSL II, *supra* note 126, at paras 20-21 Moon; Detailed drafting history in paras 22-37.
[131] Lyall and Larsen, *supra* note 36, at 168.
[132] Bin Cheng, *supra* note 69, at 153. As UNGA Resolutions are mere recommendations and not legally binding, it was left to UNCLOS III to draw up an international treaty to translate this concept into treaty law and to set up the Authority to organise and control activities in this area.
[133] Bin Cheng, *Ibid.*, at 160-162.

govern man's activities on the Moon and other celestial bodies including the legal regime governing substances coming from there.[134] Argentina is sometimes credited with having initiated the discussions about a treaty, as it had proposed the CHM principles in 1970 in their draft, and which raised one of the main issues during the negotiations.[135] In 1971 the USSR submitted a different version directly to the UNGA, and requested UNCOPUOS to consider it as a matter of priority.[136] In a deliberate attempt to head off the Argentine initiative, the USSR proposed the addition of a new item on the UNGA agenda, namely the Preparation of an International Treaty Concerning the Moon.[137] The USSR draft showed evidence of great haste in its preparation, was essentially a rehash of the relevant provisions of the Outer Space Treaty, and was limited to the Moon and did not deal with the problem of resources. Nonetheless, as it was linked to a formal proposal for a new agenda item on the UNGA itself, once the agenda item was approved it took precedence over the Argentine proposal. The LSC created a new agenda item and a working group and produced a draft treaty in 1972. Subsequent discussions centred on the utilization of resources of the Moon and other celestial bodies, in particular the application and interpretation of the CHM concept.

There was a distinct difference of focus in the early drafts.[138] The principal focus of the Argentine proposal was the issue of exploitation of lunar resources, and arguably they meant the misuse or misappropriation of the Moon's resources whilst both the US and USSR proposals focused on the peaceful uses and both included a prohibition on the stationing or installation of nuclear weapons or any Weapons of Mass Destruction ('WMD') on the Moon. It was thus the scope of application of the treaty, and in particular the question of the economic exploitation of extra-terrestrial resources, which was disputed from the very beginning and dominated negotiations. On the scope the USSR wanted to restrict it simply to the Moon, but the US favoured a broader application governing the Moon and other celestial

[134] C. Christol, *Space Activities and Implications: Where From and Where To at the Threshold of the 80's* (1981), at 76-77.
[135] CoCoSL II, *supra* note 126, at para 20-21 MOON.
[136] UNGA Res. 2779 (XXVI), Preparation of an international treaty concerning the Moon, 29 November 1971.
[137] UN Doc. A/AC.105/101, Report of the Legal Sub-Committee on the Work of the Eleventh Session (10 April – 5 May 1972), 11 May 1972, at para 5.
[138] CoCoSL II, *supra* note 126, at paras 23, 25-28 MOON.

bodies. The essentially non-space developing countries had in mind the difficulties that were being encountered at the slow-moving United Nations Conference Law of the Sea ('UNCLOS') III negotiations, and wanted primarily to have the CHM concept accepted for at least some portion of the universe in some legally binding document, and saw in the draft Moon treaty such an opportunity.[139] The US without wishing to be seen, perhaps at least at that stage prior to its walk-out from UNCLOS III as rejecting such an eye-catching concept especially over such a barren waste as the Moon, treated the whole exercise more or less as one of damage control. The USSR was the chief opponent of any mention of CHM and was adamantly opposed to it as 'heritage' and 'inheritance' were civil law concepts which should not be in space law which is part of public international law.[140] The USSR preferred the Outer Space Treaty 'common province' concept. Egypt and India were in favour of CHM. Argentina obviously considered the CHM concept to have a solid legal precedent in UNGA Resolution on the deep seabed.

Seemingly endless negotiations then ensued, with the major difficulties centred on various points.[141] There was on the one hand the scope of the treaty, on the other the nature and timing of reports that were to be made relating to explorative and exploitative activity. Moreover, there was the problem of the acceptance on CHM as a principle of international space law that the Moon and its natural resources were CHM and that the benefits of such resources to be distributed equitably among signatories to the treaty at such time as the exploitation thereof become feasible.

Bulgaria in 1973 made a major contribution when presenting a draft consisting of all the basic prior submissions. In the LSC a welter of proposals from 1973-78 were debated with little progress. Austria in 1978 attempted to demonstrate where consensus exists via a working paper of 21 Articles, which eventually with modest changes became the Moon Agreement. But the issue of the prospective regime for the distribution of benefits and the CHM principle seemed insurmountable. A 1978 Austrian draft resulted from informal negotiations. The spirit of compromise was awakened in 1979 when Brazil suggested text for Article 11 Paragraph 1, according

[139] Bin Cheng, *supra* note 69, at 162.
[140] CoCoSL II, *supra* note 126, at paras 26, 32 Moon.
[141] Bin Cheng, *supra* note 69, at 162.

to which 'the Moon and its natural resources are the common heritage of mankind, which finds its expressions in the provisions of the Agreement, and in particular in Paragraph 5 of this Article', which allowed the USSR to withdraw its opposition to the inclusion of the CHM and thus no longer to impede consensus.[142] This was supported as it provided that the area and its resources 'are' the CHM as limited. No attempt was made to define the principles. The Austrian draft had paved the way for the adoption of a final draft,[143] submitted to UNGA in 1979 and approved without a vote on 5 December 1979,[144] and opened for signature on 18 December 1979 at UN headquarters. It came into force on 11 July 1984.

Three important factors influenced the negotiation for the Moon Agreement.[145] First, it was negotiated in parallel to the negotiations of the UNCLOS III where similar discussions took place, evidenced by Article 136 of the UNCLOS, which entered into force on 16 November 1994 and declared the deep seabed and its resources as CHM. This did affect the resource utilization element of the Moon Agreement. Secondly, other aspects of Moon Agreement followed the pattern of the 1959 Antarctica Treaty, which entered into force 23 June 1961. Articles I, II and VII of which had already influenced the Outer Space Treaty on elements such as free access, demilitarization and mutual inspections. Thirdly, an aspect of the negotiating history, sometimes forgotten due to the CHM debate, is that the relations between the two superpowers were characterised by the space race between them at the time of the inception of the Moon Agreement negotiations, but also increasing cooperation in the arms control field during the negotiation of the Moon Agreement. After the sobering Cuban missile crisis in 1962, the two superpowers moved towards increased arms control, and which was extended to outer space. The Limited Test Ban Treaty brought about a ban on nuclear testing *inter alia* in outer space, emanating from the recognition that such testing was highly detrimental to manned space flight. They increasingly recognized the value of space for passive military operations, in particular satellite communications and

[142] CoCoSL II, *supra* note 126, at para 35 Moon.
[143] UN Doc. A/34/20, Report of the Committee on the Peaceful Uses of Outer Space, General Assembly Official Records, Thirty-Fourth Session, Supplement No. 20, 14 August 1979, at para 66.
[144] A/RES/34/68, UNGA Res. 34/68, Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, 5 December 1979.
[145] CoCoSL II, *supra* note 126, at paras 4-6 Moon.

satellite reconnaissance. Their concurring interests in partial demilitarization of outer space resulted in the adoption of demilitarization provisions in the Outer Space Treaty, and the prohibition on placing WMD in outer space and the designation of the use of the Moon and other celestial bodies for exclusively peaceful purposes. Arms control cooperation between them further extended in the 1970's and led to the conclusions of the Anti-Ballistic Missile Treaty ('ABM')[146] and the Strategic Arms Limitation Agreement ('SALT I').[147] Reconnaissance satellites as a technical means of verification took a vital role in the implementation of these instruments.[148] Their intensified cooperation in respect to civil space activities culminated in the 1975 on-orbit, manned rendezvous and docking mission between Apollo and Soyuz.

The above political manoeuvres are relevant in explaining the contents and the effect of the Moon Agreement but should also be tempered in the light that the original urgency for a definitive legal regime for the Moon had declined. Moreover, it took more than 10 years after the Outer Space Treaty for the Moon Agreement to be adopted as following the Outer Space Treaty the space-law-creating process had been occupied with the Rescue Agreement (1968), and the Liability- (1972) and the Registration Conventions (1975); much international effort went into the negotiation of what would become the 1983 UNCLOS; and it became evident that no immediate exploitation or exploration of the Moon was planned.

1.4 Development of the Space Debris Mitigation Guidelines

UNCOPUOS was engaged on SDM from 1994.[149] Its first concern was the progressive congestion of the Geostationary ('GEO') region, which led to the UNCOPUOS 1977 study on the physical nature and attributes of the GEO orbit, including probability estimate for collisions between functional and non-functional satellites. The crash of Soviet satellite Cosmos-945, containing radioactive debris, on Canadian territory in 1978, amplified the danger.

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[146] Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems 944 UNTS 13; note no longer in effect.
[147] Interim Agreement on Certain Measures with Respect to the Limitation of Strategic Arms TIAS 7504.
[148] Lyall and Larsen, *supra* note 36, at 168.
[149] ST/SPACE/49, *supra* note 32, at Preface.

The first international studies happened in 1982 in the run-up to UNISPACE II with the UN Outer Space Affairs Division study on Mutual Relations of Space Missions, COSPAR Study on the Dynamics of Space Objects, and a background paper on Impact of Space Activities on Earth and Space Environment. UNISPACE II called upon the international community to agree on the basis of more detailed studies, to appropriate measures such as designing certain orbits as disposal orbits, removing from orbit all inactive satellites, minimizing space debris or even organizing so-called 'scavenging' missions. Although these suggestions appear to be a blueprint for the later Guidelines, the following sessions of the UNCOPUOS didn't tackle space debris formally and space debris was only addressed within the scope of discussions on the use of nuclear power.[150]

The turning point came in 1988 and 1989.[151] ESA and COSPAR with the IAF published studies on environmental aspects of space activities including space debris (*Space Debris – The Report of the ESA Space Debris Working Group*). In February 1989 the topic surfaced at the STSC, both in its Working Group on the Use of Nuclear Powers Sources ('NPS') in Outer Space and in the plenary; And at the same time the US National Security Council published a comprehensive *Report on Orbital Debris by the Interagency Group (SPACE) for National Security Council, 1989.* In June 1989 some member states submitted a working paper to the main Committee proposing to put the issue of space debris on the agenda of the STSC which led to general agreement that space debris was an issue of concern. UNGA44 wanted member states pay more attention to the problem of collision with space debris, which finally opened the door to bring space debris to the UNCOPUOS discussion table.[152] Nonetheless, it would take another five years until the topic was formally placed on the agenda of the STSC.[153]

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[150] UNGA Res 47/68 of 14 December 1991, Principles Relevant to the Use of Nuclear Power Sources in Outer Space: Principle 3 para 2 lit. (a)(iii) and lit. (b) and Principle 5 provided for the post-mission disposal of spacecraft with NPS on board plus notification requirements in case such spacecraft re-entered Earth's atmosphere.
[151] S. Hobe S., B. Schmidt-Tedd, and K-W Schrogl (eds.), *Cologne Commentary on Space Law Volume III* (2015), at para 5 SDM ('CoCoSL III').
[152] UNGA Resolution 44/46, International co-operation in the peaceful uses of outer space, 8 December 1989.
[153] CoCoSL III, *supra* note 151, at para 6 SDM.

In 1995 a three-year work plan was adopted structuring the discussions on space debris measurements (1996), modelling (1997), and mitigation (1998), and concluding with the adoption of a Technical Report.[154] During these years the STSC had fruitful exchanges of ideas with initiatives evolving outside the UN context, in particular the IADC. The STSC adopted the concluding Technical Report in 1999,[155] which was distributed to LSC and shortly afterwards UNISPACE III.

Some delegations now felt it time to get the LSC involved, but others thought it premature.[156] In 2001 the STSC continued to consider the item by examining costs and benefits of the SDM measures and approved a four-year work plan from 2002 to 2005. Through this work plan the lines between the UNCOPUOS work and the IADC were closed, with the STSC strongly endorsing the action undertaken by the IADC to reach consensus on a set of technical debris mitigation measures. By 2003 the IADC could report on a set of space debris mitigation measures, and in 2004 the STSC established a Working Group to consider comments of member states on the IADC proposals, based on an agreement with the UNGA. The working group prepared a new work plan for the period 2005 to 2007.

In parallel to the STSC, the International Academy of Astronautics ('IAA') was also addressing this topic. This independent NGO, recognized by the UN in 1996, consists of distinguished individuals from 83 countries in the basic- and life- and social sciences, and engineering.[157] It produces 'cosmic studies' in pursuance of its mission statement to foster the development of astronautics for peaceful purposes, contributions to international endeavours, and to promote international cooperation in advancement of aerospace science.

By now it had become clear that the work of the UNCOPUOS, should it be concluded successfully, would lead to an UN-level endorsement of the technical guidelines elaborated by the IADC.[158] Yet consensus was not a foregone conclusion, as several member states regarded the IADC guidelines only as a mere

[154] UN Doc. A.AC.105/605 Report of the STSC on the Work of its Twenty-Eight Session, 24 February 1991, at para 8 (page 16).
[155] UN Doc. A/AC.105/720, Technical Report on Space Debris, 1999.
[156] CoCoSL III, *supra* note 151, at para 7 SDM.
[157] Available at https://iaaspace.org/about/iaa-in-brief/#About-Mission (last visited7 July 2020).
[158] CoCoSL III, *supra* note 151, at para 8 and FN40 SDM.

proposal that should be examined further. On the other hand, the US, Japan, France, Italy, and the UK had begun implementing the IADC guidelines at domestic level. The breakthrough was provided by the 2005 STSC when the Working Group on Space Debris agreed to develop a document on SDM and use the technical content of the IADC space debris mitigation guidelines as its basis. Conspicuously, it was agreed that the resulting document would not be binding under international law.[159] In the intersessional period 2005-2006 the Working Group considered proposals from the member states on the text of the draft guidelines. A final circulation of the guidelines at national level secured consent for adoption of the guidelines by the STSC at its 44th session. The UNGA endorsed the guidelines the same year, agreed that they reflect the existing practices as developed by domestic authorities and IGOs, and invited all UN member states to implement them through relevant national mechanisms.[160]

1.5 Development of the Long-Term Sustainability of Outer Space Activities Guidelines

The STSC in 2010 established the LTS Working Group for the agenda item Long-term Sustainability of Space Activities in accordance with UNGA Res. 64/86.[161] At its 48th session in 2011 the STSC agreed to the establishment of four expert groups to expedite the work by considering sets of related topics in parallel. In light of the work still yet to be done the chair encouraged member states to include experts able to support and advise their delegations in the development of the guidelines. Each expert group was co-chaired by experts in their respective fields.[162] Expert group A

[159] UN Doc. A/AC.105/848, Report of the STSC on its forty-second session, held in Vienna from 21 February to 4 March 2005, Annex II, Report of the Working Group on Space Debris, 25 February 2005, Para 5; UN. Doc A/62/20, Report of the Committee on the Peaceful Uses of Outer Space, GA Official Records, Sixty-second session, Supplement No. 20, 26 July 2007, at para 119.
[160] ST/SPACE/49, *supra* note 32, and UNGA Res. 62/217, International co-operation in the peaceful uses of outer space, 22 December 2007.
[161] Delgado López *et al,* 'The Importance of the United Nations Guidelines for the Long-Term Sustainability of Space Activities and Other International Initiatives to Promote Space Sustainability', *Oasis No 20* (2014), 37-53, at 42; Plattard, 'Security in space: Should space traffic management also concern payloads management', *Space Policy 33* (2015), 55-62, at 42 and 47.
[162] Martinez, *supra* note 8, at 16-17; Martinez and Kendall, 'UN COPUOS Working Group Reaches Agreement on 21 Guidelines to Promote Space Sustainability', *Space Research Today Vol 204* (April 2019), at 10; Brachét, 'The origins of the "Long-term Sustainability of Outer Space Activities" initiative at UN COPUOS', *Space Policy 28* (2012), 161-165, at 165; Appendix A: Participation Observation.

'Sustainable space utilization supporting sustainable development on Earth' was co-chaired by Mexico and Portugal and comprised 40 experts, expert group B 'Space debris, space operations and tools to support collaborative space situational awareness' was co-chaired by Italy and US and comprised 70 experts, expert group C 'Space weather' was co-chaired by Canada and Japan and comprised 40 experts, expert group D 'Regulatory regimes and guidance for actors in the space arena' was co-chaired by Australia and Italy and comprised 50 experts. The chairs and co-chairs of the expert groups were designated by consensus in special meetings of the Working Groups held in parallel with the 54th UNCOPUOS Plenary session in June 2011.

Obtaining the required consensus was a massive undertaking. UNCOPUOS had 69 member states when the LTS Working Group commenced its work in 2010.[163] In 2019, when the LTS Guidelines were accepted by UNCOPUOS and the UNGA, it consisted of 92 member states.[164] The long saga to kick-off the LTS Working Group extending from 2007 to 2011, illustrates that introducing a new agenda item of some importance in the machinery of a specialized committee of the UNGA is no mean feat.[165] Brachét saw here the positive aspects of the rule of consensus, as it encourages national delegations that consider introducing new items of substance to spend whatever time is required to explain the issue, to communicate background information which may seem obvious to the more advanced spacefaring nations but is not immediately available to the emerging ones, and to present a proposed work plan which will have a good chance of achieving the goals and objectives agreed upon. Such preparatory work takes time but lays a good foundation for the development of new norms of behaviour in outer space. Brachét admitted though that rule of decision by consensus transformed any new proposal, particularly in areas that are considered sensitive by some delegations, into a real challenge. The negative side of consensus in the LTS process must unfortunately be criticized. Part of the reason why the LTS Guidelines took longer than planned was the intransigence of one particular delegation, and because of the consensus decision-

[163] A/65/20 Report of the Committee on the Peaceful Uses of Outer Space, Fifty-third session (9-18 June 2010), General Assembly, Official Records Sixty-fifth Session Supplement No. 20, at para 7.
[164] A/AC.74.20, *supra* note 33, at para 5.
[165] Brachét, *supra* note 162, at 165.

making method in UNCOPUOS their demands had to be addressed.[166] Independently, the SFW tried hard to address the concerns around UNCOPUOS procedures and highlighted at their Costa Rica workshop the role of UNCOPUOS as the key multilateral space forum.[167]

The UNCOPUOS 59th session in June 2016 reached consensus on the first twelve Guidelines. Although the chair Martinez admitted these represented the low-hanging fruit of the LTS discussions, they marked a significant step forward in that they represent the tangible progress UNCOPUOS made in addressing the very complex topic of space sustainability.[168] He was concerned though that, given the limited time remaining for the negotiation of the Compendium of LTS Guidelines, whether the member states of UNCOPUOS will be able to reach full consensus. Martinez was positive, quite correctly as it turned out, that this first set of agreed Guidelines had created a foundation for further consensus building in UNCOPUOS. The completed LTS Guidelines described the Earth's orbital space environment as constituting a finite resource being used by an increasing number of states, IGOs and NGOs.[169]

The LTS Guidelines carved out a specific role for UNCOPUOS in the review of implementation and updating of the Guidelines.[170] Firstly, UNCOPUOS will be the

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[166] With the unfortunate passing away of their leader, the Russian delegation declared all previous agreement null and void, and the draft had to be re-negotiated under the very real threat of a veto; see Appendix A: Participation Observation.

[167] When a participant distinguished between consensus and unanimity, it was pointed out that the goal of the Committee to reach consensus lies at the state level, see *Secure World Foundation Report Regional Workshop on Long-Term Sustainability of Space Activities*, April 7-8, 2015, Costa Rica, at 15 ('SFW'); available at https://swfound.org/events/2015/regional-workshop-on-the-long-term-sustainability-of-space-activities (last visited 10 January 2020).

[168] A/AC.105/2016/CRP.11/Rev.2 Long-term sustainability of outer space activities: proposal to adopt a first set of guidelines together with a renewed workplan for the Working Group on the Long-term Sustainability of Outer Space Activities of the Scientific and Technical Sub-Committee Proposal by Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Colombia, Costa Rica, Czech Republic, France, Germany, Greece, Israel, Italy, Japan, Luxembourg, Netherlands, Poland, Portugal, Republic of Korea, Romania, Slovakia, Spain, Sweden, United Kingdom of Great Britain and Northern Ireland, United States of America; Martinez, 'Socialization and Implementation of the UN COPUOS Space Sustainability Guidelines', Insight, *Secure World Foundation*, October 5, 2018; unnumbered document available at https://swfound.org/news/all-news/2018/10/insight-socialization-and-implementation-of-the-un-copuos-space-sustainability-guidelines (last visited 10 February 2020); Discussion with Martinez December 2016 in Cape Town (Appendix A: Participation Observation); See also Report of the Committee on the Peaceful Uses of Outer Space, Fifty-ninth session (8–17 June 2016), UN General Assembly document A/71/20.

[169] A/AC.74.20, *supra* note 33, at Annex II paras 1 and 2.

[170] A/AC.74.20, *Ibid.*, at Annex II paras 21, 22, and 24.

principal forum UN body for continued institutionalized dialogue on issues related to its implementation and review. Secondly, States and IGOs are encouraged to share their practices and experiences in UNCOPUOS, and also work within the Committee and the UNOOSA Secretariat to address concerns raised on the implementation of the LTS Guidelines. These entities are also encouraged to raise the issues with other directly involved states and IGOs through appropriate channels. Without prejudice to the mechanism foreseen in Article IX of the Outer Space Treaty, these exchanges on practical implementation may seek to achieve a mutual understanding of the situation and options for resolution. The outcome of those exchanges and resulting solutions could be presented to UNCOPUOS, on the consent of the states involved, to share relevant knowledge and experience. UNCOPUOS may periodically review and revise the LTS Guidelines to ensure that they continue to provide effective guidance. Proposals for revising the LTS Guidelines may be submitted by UNCOPUOS member states only. UNCOPUOS is the appropriately mandated multilateral body to address questions of sustainability,[171] as the international regulatory framework for outer space activities is predicated on the notion that states, as subjects of international law, bear international responsibility and liability for activities conducted in outer space by entities under their jurisdiction and/or control. This intrinsically multilateral issue requires a multilateral solution.

Voluntary implementation of the LTS Guidelines by states and IGOs is encouraged through their own national or other applicable mechanisms and in accordance with their respective needs, conditions and capabilities, and with their existing obligations under applicable international law including the provisions of applicable outer space UN treaties and principles.[172] In implementing the LTS Guidelines, the principles of cooperation and mutual assistance are to be followed.

1.6 SDM & LTS Guidelines Variation from MOON Procedure

The LSC was not involved in the UNCOPUOS SDM Guidelines. Throughout 1988 to 2007 space debris was exclusively addressed in the STSC, and was at no time

[171] Martinez, *supra* note 8, at 14.
[172] ST/SPACE/49, *supra* note 32, at paras 16-20.

deferred to or complemented by the LSC.[173] The Czech Republic in 1996 had already proposed an agenda item 'Review of Existing form of International Law Applicable to Space Debris' to be added to the LSC as it was convinced that the growing problem of space debris required both a technical and a legal solution, but it proved impossible to obtain consensus. Only by 2014 an initiative of the Czech Republic, Germany and Canada (supported by ESA), led to the establishment of a 'Compendium of Space Debris Mitigation Mechanisms' to review national and institutional mitigation mechanism worldwide, and which is regularly updated by UNOOSA by way of conference room papers.[174]

The UNCOPUOS SDM Guidelines were based on those of a unique forum, the IADC,[175] with terms of reference approved by countries or national entities, and IGOs that carry out space activities through either manufacturing, launching and operating spacecraft, or manufacturing and launching rockets. The creation of the IADC in 1993 established a purpose-oriented and relatively flexible platform for regular exchange and discussion on space debris.[176] Although sometimes termed an 'international governmental forum', arguably the IADC has no international legal personality and its main purposes are to exchange information on space debris research activities, facilitate opportunities for cooperation in space debris research, review the ongoing cooperative activities, and identify debris mitigation options. The SDM Guidelines had benefitted considerably from the technical guidelines developed outside of the UN framework in the years preceding the final phase of discussion at the UNCOPUOS (2002-2007).[177] Due to the strictly technical nature of the models in national guidelines and the IADC, UNCOPUOS member states could achieve consensus in a comparably short timeframe. It was not necessary to

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[173] CoCoSL III*, supra* note 151, at para 9 and FN 45 SDM.
[174] Available at http://www.unoosa.org/oosa/en/ourwork/topics/space-debris/compendium.html (last visited 30 May 2022); developed on the initiative of Canada, the Czech Republic and Germany as a contribution to UNCOPUOS; latest version A/AC.105/C.2/2022/CRP.17, 30 March 2022, Compendium of space debris mitigation standards adopted by States and international organizations.
[175] Ferrazzani, 'Soft Law in Space Activities – an Updated View', in I. Marboe (ed.) *Soft Law in Outer Space: The Function of Non-binding Norms in International Space Law* (2012), 99-144, at 108.
[176] CoCoSL III*, supra* note 151, at para 8 SDM; see also Article 1 of the Terms of Reference of the Inter-Agency Space Debris Coordination Committee, available at https://aerospace.org/sites/default/files/policy_archives/TOR%20for%20Inter-Agency%20Space%20Debris%20Coordination%20Committee.pdf (last visited 19 August 2019).
[177] CoCoSL III, *Ibid.,* at para 10 SDM.

reinvent the wheel, but how and to what extent to take the existing elements further. Government space agencies played a key role in the process of development of these earlier documents, owing to their practical expertise in space mission development and operations, such as the definition of technical content based on physical and engineering realities, and which defined the language of the various guidelines. The SDM Guidelines text acknowledged in paragraph 2 of the Second Guideline (Rationale) 'the benefit of a set of high-level qualitative guidelines, having wider acceptance among the global space community'.[178] This acceptance of the IADC Guidelines is remarkable, because a set of standards elaborated by a smaller 'club' of spacefaring states was universally accepted by the global space community via UNCOPUOS endorsement. Possibly this universalization of the IADC Mitigation Guidelines may have been driven by the recognition of the severity of the space debris problem. The Rationale Part second paragraph also refers to 'a series of existing practices, standards, codes and handbooks developed by a number of national and international organizations', such as the European Code of Conduct for Space Debris Mitigation adopted by the European Space Agencies, the International Organization for Standardization ('ISO") Standard 4113 Space debris mitigation requirements adopted in 2011, and the ITU-R.S 103 Environmental protection of the geostationary-satellite orbit.

Four expert groups began the discussion on the ideas and concepts that eventually led to the final LTS Guidelines, with the intention to expedite the LTS Working Group's work.[179] The expert groups discussed specific topics and propose candidate guidelines in the four thematic areas.[180] Again, the LSC was largely cut out of the negotiations and drafting, with the stimulus coming from the STSC. Particularly, legal Expert Group D concluded its work fairly quickly and was then disbanded. Thereafter Martinez would merely brief the LSC informally. In essence, this was a STSC-driven project.

[178] CoCoSL III, *Ibid.,* at para 29 SDM.
[179] Martinez, *supra* note 8.
[180] Martinez and Kendal, *supra* note 162, at 10; Appendix A: Observation participation.

1.7 Status of and Reception of the UNCOPUOS Instruments Examined

The end result of the myriad negotiations sessions to produce the Moon Agreement was somewhat predictable with both sides claiming that they have achieved their respective objectives, with the success of the developing countries being perhaps more nominal than real.[181] The prime objective of the developing countries was secured in Article 11.1, but the very subtle wording, known as the Austrian formula in honour of its begetter, means that the CHM is no more than a short-hand label for the provisions of the treaty which actually amount to relatively little. Sub-Article 11.5 caters for the states party to the Moon Agreement to undertake to establish an international regime 'as such exploitation is about to become feasible'. Arguably this obligation consists of no more than that of a *pactum de contrahendo.* The US for example, has always maintained that the Moon Agreement does not establish a moratorium on exploitation.

No space power rushed to ratify the Moon Treaty.[182] Although adopted by consensus in UNCOPUOS and then as a resolution in UNGA, the Moon Agreement did not attain widespread support among major space-faring states.[183] Only 18 states have ratified which is far less than the other UN space treaties. One ratifier, Australia, apparently seriously contemplated withdrawal.[184] Ten years after its entry into force, UNCOPUOS at its 37th session even considered its revision in terms of Article 18.[185] Possibly due to a lack of interest in the Moon at the time, UNCOPUOS recommended to the UNGA that it takes no further action.

Opinions remain divided in the academic world. Hobe *et al* considered the major stumbling block for many states remains the CHM concept. Yet, they admitted the Moon Agreement has certain advantages, as the world has changed technologically and politically since it has been negotiated and it will become relevant again, and it also remains the only available legal text specifically dealing with the exploration and use of the Moon and its resources. It is significant that four of the ratifications were in recent times, and that the LSC had considered the question but then

[181] Bin Cheng, *supra* note 69, at 162.
[182] A/AC.105/C.2/2019/CRP.3*, *supra* note 114.
[183] CoCoSL II, *supra* note 126, at paras 1-3 Moon.
[184] Lyall and Larsen, *supra* note 36, at 166.
[185] CoCoSL II, *supra* note 126, at para 299 Moon.

recommended to the UNGA not to review.[186] Christol concluded that the Moon Agreement did not derogate in any way from the Outer Space Treaty, but in fact added to it.[187] It did not create a moratorium on the present exploitation of the area and its resources, but allows for the acquisition of property rights in materials that are removed from the surface or subsurface of the area. Property rights though may not be obtained in the surface or subsurface *per se*. Like all other space-environment treaties following the Outer Space Treaty, it fortified and extended the latter.[188] The CHM principle is consistent with the provisions of Article 2 Outer Space Treaty preventing national appropriation of the space environment. It provided additional general support for the application of the rule of law in the spatial area of the Moon and its natural resources. Christol admitted though that particular difficulties were encountered in reaching consensus on the use and exploitation of natural resources, on limits to be imposed on ownership and property rights, and on the CHM principle.[189] Lee emphasized that the Moon Agreement received very little acceptance due to US and the most developed countries objecting to the interpretation of the CHM in Article 11 as proposed by the developing countries in the concurrent debates on the UNCLOS.[190] The central concepts of this interpretation encompassed the absence of private property rights, and the creation of a supranational organisation and the distribution of benefits to the developing nations regardless of their level of participation. Lyall and Larsen simply regarded the legal regime on the use of the Moon and other celestial bodies as not entirely settled, and will require adaptation.[191] Sreejith criticized the Moon Agreement as the height of legal speculation, where states had fought a war of shadows and came out with nothing.[192] Schrogl considered the Moon Agreement in a positive light, as the issue of maintaining outer space for peaceful purposes has been a goal of

[186] UN Doc. A/AC.105/891, Report of the Legal Sub-Committee on its Forty-Sixth Session (26 March – 5 April 2007), Annex I, Report of the Chairman of the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space, 2 May 2007; UN Doc. A/49/20, Report of the Committee on the Peaceful Uses of Outer Space, General Assembly Official Records, Forty-Ninth Session, Supplement No. 20, 12 August 1994, at paras 150-153.
[187] Christol, *supra* note 134, at 78.
[188] C. Christol, *The Modern International Law of Outer Space* (1982), at 318-324.
[189] See in general Christol, *Ibid.*, at 321-324.
[190] Lee, *supra* note 38, at 249-256.
[191] Lyall and Larsen, *supra* note 36, at 187.
[192] Sreejith, *supra* note 95, at 348.

UNCOPUOS from its establishment.[193] He saw it as a model of non-militarization in outer space, comparable to the Antarctic Treaty of two decades earlier, and achieved in elaborating on the second part of Article 4 Outer Space Treaty. Simply for this reason, the Moon Agreement should be much more cherished. Finally, Lyall and Larsen commented the best that can be said is that the Moon Agreement is dormant.[194] The concept of CHM has not been a success in the debates on the interests of developing countries in both the ITU and UNCOPUOS, and its presence in the Moon Agreement has crippled that treaty. Nevertheless, elements of the Moon Agreement make good sense and they urged discussion on CHM not to refer to 'benefits' but to 'stakeholder interests'.

Perhaps the failure of the Moon Agreement can be most tellingly demonstrated by the almost desperate backing it received from UNGA Res. 72/78 adopted on 7 December 2017,[195] which *inter alia* calls for the further promotion of this treaty and for states to become a party, and then explicitly in operating paragraph 14 refers to it as part of the legal regime of outer space.

The recent Artemis Accords acknowledged the role of UNCOPUOS, yet its Section 10(4) references 'multilateral efforts to further develop international practices and rules applicable to the extraction and utilization of space resources' and at the same time the adoption of the LTS Guidelines, and arguably provides more proof of how the major space powers truly disvalue the Moon Agreement yet also cynically use it. The Artemis Accords is advertised to build on the 1967 Outer Space Treaty, especially the ban on the use of nuclear weapons in space and the prohibition on nations from laying sovereignty claim to the Moon or other celestial bodies. NASA even claimed that 'it's a forcing function to get nations to comply with the Outer Space Treaty', yet the pact also aims to provide a framework under international law for companies to own the resources they mine under a 2015 US law granting

[193] Martinez *et al*, 'Reflections on the 50th Anniversary of the Outer Space Treaty, UNISPACE+50, and Prospects for the Future of Global Space Governance', *Space Policy 47* (2019), 28-33, at 31-32.
[194] Lyall and Larsen, *supra* note 36, at 516, 520.
[195] A/RES/72/78 [A/72/446)] on the report of the Special Political and Decolonization Committee (Fourth Committee), Declaration on the fiftieth anniversary of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, at preambular paragraph 9.

companies the property rights to resources they mine in outer space.[196] Apparently the UK tried to soften the original draft devised by the USA, and questioned whether the Artemis Accords are too focused on US interests in a way that could lead to disagreements in the future, especially if, or when, commercial interests overtake today's scientific exploration.[197] The UK Space Agency acknowledged that legal advice had been sought along with clarifications from the US before signing. The UK agreed with the principle that operators on the Moon could establish safety zones around their activities in order to ensure they do not disrupt each other's experiments, but did not like the fact that this could be something that might be enduring in nature and could be seen to be an appropriation of the Moon's surface. The compromise arrived at is to ensure that these are temporary measures. How irrelevant the Moon Agreement is considered to be, can be readily ascertained from the fact that the Artemis Accords signatories acknowledged in Preambular Paragraph 9 the first four outer space treaties, but refrained from mentioning the Moon Agreement in the pact at all. The Artemis Accords then proceed to specifically reference principles from the first four outer space treaties including peaceful purposes in the use of outer space and international law applicable, sharing scientific information, assistance to personnel in distress in outer space, registration of space objects, no national appropriation and informing the UN Secretary-General of outer space activities, plus due regard and prevention of harmful interference and safety zones.[198] Two UNCOPUOS outer space soft law instruments are referenced, with an apparent obligation to adhere to SDM[199] and LTS Guidelines however 'with appropriate changes to reflect the nature of operations beyond the low-Earth orbit'.[200]

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[196] Apparently a reference to Space Resource Exploration and Utilization Act: See Tronchetti, 'The Space Resource Exploration and Utilization Act; A Move forward or a step back?', *Space Policy 34* (2015), 6-10.
[197] Amos, 'Project Artemis: UK signs up to Nasa's Moon Exploration principles', available at https://www.bbc.co.uk/news/science-environment-54530361 (last visited 15 October 2020).
[198] Artemis Accords, *supra* note 13, at Section 3 - Peaceful Purposes, Section 4 – Transparency, Section 6 - Emergency Assistance, Section 7 - Registration of Space Objects, Section 10 – Space Resources, especially sub-Sections 2 and 3, and Section 11 - Deconfliction of Space Activities.
[199] Artemis Accords, *supra* note 13, at Section 1 – Purpose and Scope second paragraph, Section 12 – Orbital Debris.
[200] Artemis Accords, *supra* note 13, Section 10 – Space Resources especially sub-Section 2, and Section 11 – Deconfliction of Space Activities especially sub-Section 2.

Of the 19 states that to date have joined the Artemis Accords, only Australia, Mexico and Saudi Arabia have ratified the Moon Agreement.[201] Of the rest only Romania had signed the Moon Agreement. Fortunately for those states that have ratified the Moon Agreement, although well-camouflaged to look like a treaty, the Artemis Accords does not adhere to the definition of a treaty as set out in sub-Article 2(1)(a) of the Vienna Convention on the Law of Treaties ('VCLT').[202] As it is not a formal treaty, the Moon Agreement ratifiers are not placed in a complex treaty law situation having to answer any accusations of termination and suspension of the operation of a treaty by conclusion of a later treaty or the application of successive treaties relating to the same subject-matter.[203] Credible speculation might be that the US is disclosing planned activities in outer space by providing it to the Secretary-General of the UN, but simultaneously it appears to be a deliberate declaration that the CHM principles in the Moon Agreement will not be adhered to. What would be interesting to observe is how the Moon Agreement ratifiers will manage to adhere to the *pacta sunt servanda* obligation and perform the Moon Agreement in good faith.[204] It is debatable whether the Artemis Accords can be classified even as a commercial contract as it appears to be rather something more akin to a statement of intent, and perhaps that will be Australia's argument.

UNCOPUOS failed to tackle SDM even after the UNISPACE II discussions. The UNGA had to force this issue in 1989 in UNCOPUOS, and even then it was dealt with by the STSC, and not by the LSC. Eventually UNCOPUOS would advise UN-level endorsement of the technical guidelines elaborated by the IADC, but that was in the nature of a *fait accompli* as some major spacefaring nations was already implementing it. The guidelines of the IADC, UNCOPUOS, European Code of Conduct for Space Debris Mitigation as adopted by ESA, and the ISO 4113 Space Debris Mitigation Requirements, are all remarkably similar.

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[201] See A/AC.105/C.2/2019/CRP.3*, *supra* note 114.
[202] Appendix A: Participation Observation: No end clauses (in particular no entry-into force requirements), signatories are not international actors, no obligations in supposedly peremptory verbs ('commit', 'to recognize', 'plan'), and Section 13(2) acknowledges it is not eligible for registration as a treaty under Article 102 of the UN Charter.
[203] Articles 59 and 34 VCLT, in particular 34(3) and (4).
[204] Article 26 VCLT.

Unlike other space law instruments, the SDM Guidelines was not adopted by a distinct resolution, but only endorsed by the UNGA in the scope of its UNCOPUOS omnibus resolution and is thus seen as having a weak status.[205] The text of the UNCOPUOS Guidelines was only annexed to the 2007 UNCOPUOS Report. Both the UNCOPUOS Report and UNGA Resolution emphasized its non-binding status.

Not being discussed in the LSC resulted in the SDM Guidelines remaining a technical document in nature, content and consequence.[206] Although recommended and endorsed as such by the UNGA, the absence of LSC involvement meant that questions as to liability and a legal definition of space debris were never clarified, and UNGA endorsement does not change this. Even so, the clarification on the nature of debris as '… all manmade objects, including fragments and elements thereof, in Earth orbit or re-entering the atmosphere, that are non-functional' was welcomed.[207] All manmade items in outer space can be considered debris from a purely technical point of view and possibly should be classified as space debris in a legal sense. The ESA Space Debris Working Group proposed an approach to define space debris by dividing human-made space objects in two categories:[208] Firstly, functional active satellites under control, and secondly space debris such as deactivated satellites, rocket upper stages and/or parts thereof, paint flakes etc. Thus, space debris is characterized as both man-made and does not serve any purpose. Nevertheless, there is still no agreement on whether space debris is part of the 'space object' definition.[209] Also, UNOOSA stressed that the recovery and return of space debris is a central part of the 1968 Rescue Agreement, and that the Secretary-General should be informed of any such discovered objects.[210]

Despite its avowed non-binding nature, many authors are convinced that the SDM Guidelines are not without legal significance. Ferreira-Snyman deplored the fact

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[205] CoCoSL III*, supra* note 151, at para 69 SDM; UNGA Res. 62/217, *supra* note 160, in particular para 27; UN Doc. 1/62/20, Report of the Committee on the Peaceful Uses of Outer Space, 2007, Annex, in particular para 119.
[206] CoCoSL III, *Ibid.,* at para 9 SDM.
[207] Viikari, 'Environmental Aspects of Space Activities', in F. von der Dunk and F. Tronchetti (eds.), *Handbook of Space Law* (2015), 717-768; also CoCoSL III, *Ibid.*, at para 12 SDM Background.
[208] Popova and Schaus, *supra* note 10, at 10.
[209] Article I lit. (d) LIAB and Article I lit. (b) REG: 'The term "space object" includes component parts of a space object as well as its launch vehicle and parts thereof'.
[210] Available at http://www.unoosa.org/oosa/en/ourwork/topics/space-debris/index.html (last visited 16 August 2019); UNOOSA maintains a list of such recovery notifications.

that the mitigation of space debris is a matter for voluntary compliance by states, but argued it does have a moral and political value.[211] Moreover, soft law guidelines have a legal value as they impact on the international law-making process by providing the premise from which customary international law may develop and may eventually lead to the conclusion of a treaty. Hobe *et al* argued it is likely to become more relevant in future due to the increasing safety risks caused by the ongoing proliferation of debris.[212] It can be regarded as specifying legal obligations, and as defining the standard of reasonable conduct, which is relevant to the assessment of fault within the context of the LIAB. Fault is not defined in the LIAB, but as the UNCOPUOS Guidelines emanated from the IADC which is a body consisting of leading space agencies, there is good reason to regard the mitigation-norms contained therein as those objective standards and practices that define the reasonable conduct in respect to the avoidance of space debris. Thus, non-compliance herewith can lead to causation of damage in terms of Article III LIAB and the respective Launching State of the damage causing object can be held to be at fault.[213] Marboe believed that the reluctance to address legal and regulatory aspects of space debris overlooks that even if the IADC and the UNCOPUOS Guidelines are merely technical guidelines, they can develop into a professional standard if widely accepted and respected by the relevant industry, can be considered as safety standards, and contain elements that may influence the assessment of duties of care and diligence in liability cases against states and space operators.[214] A number of elements of the required standard of care necessary for the establishment of fault liability are contained in the SDM Guidelines. Together with general principles of law on fault liability, it might eventually lead to the responsibility of space actors to respond appropriately to limit space debris. For Marboe thus, non-binding norms may play a key role in order to determine if negligent behaviour has taken place and if, in the case of damage caused, liability

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[211] Ferreira-Snyman, 'Environmental responsibility for space debris', in Y. Failat and A. Ferreira-Snyman (eds.), *Outer Space Law Legal Policy and Practice* (2017), 257-283, at 264 and 266.
[212] CoCoSL III, *supra* note 151, at paras 68-70 SDM; Article IX OST.
[213] For a detailed discussion on the SDM Guidelines and liability see Viikari, *supra* note 207, at 731-739; and also CoCoSL III*, Ibid.*, at paras 80, 81, 84 SDM.
[214] Marboe 'The Importance of Guidelines and Codes of Conduct for Liability of States and Private Actors' in I. Marboe (ed.), *Soft Law in Outer Space: The Function of Non-binding Norms in International Space Law* (2012), 119-144, at 139-144; author's emphasis.

for fault can be established. Viikari felt the fact that all major spacefaring nations participate in the STSC, which moreover operates by consensus, should facilitate the approval and implementation of the Guidelines on a national level.[215] Popova & Schaus concluded that experience with SDM shows that even though the law is often far behind technological development, non-binding policies and efforts can play a substantial role and, furthermore, serve as a basis for the creation of binding rules.[216]

Unquestionably space debris mitigation is considered a very important topic at LSC meetings, in particular by developing nations, and arguably it is a positive that the SDM Guidelines led to the LSC Topic *General Exchange of Information and Views on Legal Mechanisms Relating to Space Debris Mitigation Measures, considering the work of the STSC*.[217] The legal framework related to space debris, as adopted by the UNGA, has been an important step towards providing all spacefaring nations with guidance on how to mitigate the problem of space debris, through either direct implementation of the Guidelines or development of dedicated national legislation. It is even considered to have deepened research in the area of technology for space debris observation, space debris environmental modelling, and technologies to protect space systems from space debris and limit the creation of additional space debris, as the future of space activities would depend largely on space debris mitigation measures. The UNOOSA compiled Compendium aids discussions as it, at the request of member states, publicly available through UNOOSA's website. The Compendium is a very useful tool to test the success of the SDM Guidelines, as it informs states of the current instruments and measures implemented.[218] Updated annually, it is divided into (with links to the relevant legislation) national mechanisms of which there are currently 23; international mechanisms (including the LTS Guidelines) of which there are five, and electronic templates for states and IGOs to complete.

[215] Viikari, *supra* note 207,at 743.
[216] Popova and Schaus, *supra* note 10, at 13.
[217] Videlier-Gutman, 'UNCOPUOS Legal Sub-Committee 2015 Session', *Space Law Newsletter* October 2015, 14-16, at 16.
[218] Space Debris Compendium, *supra* note 174.

However, the SDM Guidelines are not without its critics. It has been seen as insufficient in the long term towards reducing risk related to space debris,[219] quite general in nature with no comprehensive approach to the space debris problem, no direct guidelines as to liability, no provisions about data exchange concerning the space environment, intentional destructions such as anti-satellite tests ('ASAT') are not banned, does not address the space debris issue in the context of non-peaceful space activities, and consists mostly of political- and not legal commitment to mitigate the space debris problem as the mandate of the LSC does not extend to the consideration of any substantive legal aspects of space debris or to detailed analysis of the UNCOPUOS Guidelines. Repeated proposals for an inclusion on the LSC agenda of an item to review the legal aspects of the Guidelines so that it can be transformed into a new set of UN space principles like the NPS Principles, were ignored. There is a pressing need to consider the legalities of actively removing non-functional objects in space via ADR, but this will be challenging due to the lengthiness of international treaty-making, the difficulty in attracting sufficiently broad acceptance, and the clear tendency in the space sector today to develop regulation not by adopting new legally binding instrument but in the form of less formal soft-law arrangements.[220] Schrogl attributed the reluctance of states to adopt binding regulations concerning space debris to space powers' unwillingness to develop rules jointly with states not involved in space activities and which lack the technical and engineering knowledge to discuss the issue competently beyond a political level, and their hesitancy to bind themselves legally as space mitigation measures would necessarily require certain technical modifications to launchers and spacecraft that could result in costs increases.[221] However, the current debate has shifted to include calls for the strengthening of the Guidelines and even proposals to make them legally-binding instruments. Ferreira-Snyman relied on this to call for a new treaty.[222] Tronchetti believed that the UN space treaties were drafted at a time when space debris was not an issue and thus the applicability of

[219] Viikari, *supra* note 207, at 744-746.
[220] Viikari, *Ibid.*, 768.
[221] Schrogl, 'Space and its Sustainable Uses', in C. Brunner and A. Source (Eds.) *Outer Space in Society, Politics and Law (*2011), 604-618, at 606.
[222] Ferreira-Snyman, *supra* note 211, at 283.

space law principles to them is complicated and also questionable.[223] The constant growth of space debris demands the imposition of very restrictive mitigation strategies, and Popova and Schaus criticized the SDM Guidelines' lack thereof.[224]

Yet, the SDM Guidelines were incredibly successful.[225] Although voluntary, they were adopted by states and implemented in national regulation as *de facto* international standards. Whilst their observance does not end the long debate of space debris, at the least it will probably result in a moratorium on the discussion as to whether it should be controlled as a matter of law or rely on voluntary practice.

The LTS Guidelines are of a voluntary nature and status,[226] and although based on international space law, do not have the force of international law.[227] Voluntary, non-binding Guidelines may be too fragile an instrument to address the pressing challenge of space sustainability effectively. Nonetheless, given the urgency of addressing the challenges of space sustainability, and given the lack of appetite in UNCOPUOS to negotiate new legally binding instruments, the development of voluntary, non-binding soft-law instruments was a pragmatic way forward. Interestingly, Martinez considered the agreements reached in UNCOPUOS as politically binding on states that had joined UNCOPUOS consensus. Like the SDM Guidelines, they depict environmentally relevant technical measures for future space missions.[228] They are intended to supplement guidance available in existing standards and regulatory requirements.[229]

The first twelve guidelines' value lies in their inclusion of some important rules to promote international SSA information sharing by encouraging member states and IGOs to designate a contact point to efficiently share information of potentially urgent measures for the safety and sustainability of outer space activities.[230] It also

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[223] Tronchetti, *supra* note 196, at 332.
[224] Popova and Schaus, *supra* note 10, at 11.
[225] Lyall and Larsen, *supra* note 36, at 276.
[226] A/AC.74.20,*supra* note 33, at Annex II paras 4, 16-20; Johnson, *supra* note 57, at 1513.
[227] Martinez, *supra* note 8.
[228] Popova and Schaus, *supra* note 10, at 11.
[229] Delgado López *et al*, *supra* note 161, at 43; A/AC.105/C.1/L.339, Proposal for a draft report and a preliminary set of draft guidelines of the Working Group on the Long-term Sustainability of Outer Space Activities, *Working Paper by the Chair of the Working Group*, 2014, at para. 17.
[230] Tanaka, 'Applicability of remote sensing policies to space situational awareness', *Space Policy 42* (2017), 83–91, at 85-86.

recommends the improvement of accuracy of orbital information on space objects, and considers the use of an internationally recognized standard format to ensure interoperability of SSA information sharing. It suggests the development of relevant technologies to track space debris, sharing and disseminating the information, and the sharing of space weather information. This new development at the institutional mechanism level is seen as reiterating the importance of the legal concept of sustainable development for international space law.[231]

The issues relating to the long-term sustainable use of outer space still exist, because of a gap in international space law. Fortunately, the LTS Guidelines were developed to fit within the existing international legal framework for space activities.[232] The practices of states (including policies, operating procedures, technical standards, and experience gained in space activities) were considered in the development of the Guidelines. Martinez described the final 21 LTS Guidelines agreed on as the product of consensus of the member states of UNCOPUOS and representing the first results of international multilateral dialogue on space sustainability.[233] The agreed LTS Guidelines comprised a collection of internationally recognized measures for ensuring long-term sustainability of outer space activities and enhancing safety of space operations by addressing policy, regulatory, operational, safety, scientific, technical, international cooperation, and capacity-building aspects of space activities. It is relevant for all governmental and NGO space activities, whether planned or ongoing, and to all phases of a space mission, including launch, operation, and end-of-life disposal. The reaching of consensus on the LTS guidelines was a significant milestone for the space community and the space sustainability effort. The LTS process created a broad awareness among the UNCOPUOS member states to address space sustainability concerns through international cooperation, realising there is no other alternative to deal effectively with this intrinsically multilateral issue.[234] This non-binding

[231] Prasad, 'Relevance of the Sustainable Development Concept for International Space Law: An Analysis', *Space Policy 47* (2019), 166-174, at 171 and 166.
[232] Delgado López *et al*, *supra* note 161, at 43; A/AC.105/ C.1/L.339, *supra* note 229, at 4.
[233] Martinez, *supra* note 168; note unnumbered document.
[234] Martinez, *supra* note 8, at 17; also Pelton,' A path forward to better space security: Finding new solutions to space debris, space situational awareness and space traffic management', *The Journal of Space Safety Engineering 6* (2019), 92-100, at 99.

instrument does not lack relevance as it can serve as a model for the development of national space laws which impose concrete obligations for implementing mitigation measures on private space actors.[235] Moreover, it can also be seen as an expression of the willingness of the international community to formulate, even if only on a voluntary basis, certain technical standards for space activities in order to prevent the creation of space debris. Thus, they may serve as a basis for the development of a legal framework such as for SDR. Adopting a widely acceptable treaty requires lengthy discussions among the stakeholders on the specificities,[236] whilst developing an LTS regime from the bottom-up may help to pave the way to the conclusion of a new international convention or the emergence of customary international law.

Arguably UNCOPUOS member states must be seen to adhere to such voluntary codes, in order to be taken seriously by others. The LTS Guidelines itself indicate that their value lies in the fact that it is grounded in the understanding that the exploration and use of outer space should be conducted in a way to ensure the long-term sustainability of outer space activities.[237] Accordingly, they are intended to support states in engaging in activities aimed at preserving the space environment for the exploration and use of outer space for peaceful purposes by all states and IGOs. The Guidelines intended to support the development of national and international practices and safety frameworks for conducting outer space activities while allowing for flexibility in adapting such practices and frameworks to specific national circumstances. The LTS Guidelines may be voluntary and not legally binding, but its drafters took care to warn that any action taken towards their implementation should be consistent with the applicable principles and norms of international law.[238]

The LTS Guidelines are not without its critics. The SFW recognized that space efforts are highly disaggregated in many countries, and the process by which each country informs and develops its political positions on space-related issues can vary

[235] Popova and Schaus, *supra* note 10, at 11.
[236] Yan, 'Maintaining Long-Term Sustainability of Outer Space Activities: Creation of Regulatory Framework to Guide the Asia-Pacific Space Cooperation Organization and Selected Legal Issues', *Space Policy 47* (2019), 21-62, at 54.
[237] A/AC.74.20, *supra* note 33, at Annex II paras 6-8.
[238] A/AC.74.20, *Ibid.*, at Annex II paras 15, 16.

widely.[239] Some countries will consult their space agencies or space advisory bodies for input, while others have content expertise focused on either the ministries of science or of foreign relations.

1.8 Is there a Crisis in Space Law-making?

At various stages since 1979 UNCOPUOS and its Subcommittees considered the following to be worthy of formal international instruments:[240] A draft Agreement on Activities Carried out through Remote-Sensing Satellite Surveys of Earth Resources, proposals concerning implications of space communications, delimitation of outer space and definition of space activities, space refuse, environmental protection, and demilitarization in outer space. There were calls for new treaties on remote sensing, direct television broadcasting, use of nuclear power sources in space, the regulation of space transportation systems, standards respecting contamination and pollution, and a practical boundary between air and outer space.[241] These draft treaties either fell between the cracks and were never completed or were relegated to UNGA Resolutions.

Even the UN called for supplementing the outer space treaties, but notably via new sets of principles and/or interpretative resolutions of the UNGA, and only in the alternative via new legally binding instruments.[242] That the UN had by 2004 given up on producing treaties for outer space law can be deduced from (then) UN Secretary-General Anan's themes: UNOOSA was to 'assist' in formulating and adopting legal instruments and standards relating to the exploration and peaceful uses of outer space, and in solving problems of global significance.

In 2004 there was an unsuccessful suggestion by states that believe the regime is lacking and beyond development through amendment, for the negotiation of a new, comprehensive treaty as the only logical way to successfully meet the changing

[239] SFW, *supra* note 167.
[240] Masson-Zwaan and Hobe, *supra* note 75, at 130; H. Baker, *Space Debris: Legal and Policy Implications* (1989), at 155.
[241] Christol, *supra* note 188, at 846.
[242] United Nations, *Proceedings of the Workshop on Space Law in the Twenty-First Century* (2000), organized by the IISL with UNOOSA, at 19.

needs of space activities.[243] They argued that nations are not participating in the existing treaties due to uncertain interpretation, it would affirm the current space law regime, and is necessary for the five existing treaties are intentionally interrelated requiring a holistic approach.

The resulting trends are the clear development from hard international law towards non-binding UNGA resolutions, thus soft law, for specific uses of outer space. Moreover, it is a slow but clear deviation from hard international law towards the re-interpretation of legally binding rules by non-binding legal rules via the making of legally non-binding rules for specific space activities.[244]

A recent leader article bluntly stated that for space to fulfil its promise governance is required however the big problem is in developing the rule of law, and the current system is less a binding framework than a gentlemen's agreement.[245]

Concerns were expressed regarding the main direction of space law-making, with a medium to long-term severe crisis for space law drafting envisioned.[246] The deviation from the rule of law contains the danger of a considerable weakening of international space legislation and coincides with developments like the SDM Guidelines which were only achieved initially on the basis of an inter-agency agreement and which UNCOPUOS later recognized and endorsed, plus the LTS Guidelines recently approved by UNGA. There is clearly an increasing tendency to replace legally binding normative rules with non-binding instruments. The adoption of five outer space treaties in 12 years was followed by a long period of no treaty-making, and instead most of the 1980's and 1990's saw the adoption of UNGA non-binding resolutions such as on DBS, remote sensing and NPS. From 1996 resolutions were adopted that interpreted binding international law. The 2004 Resolution on the Launching State and 2007 Resolution on Registration Procedures were attempts to partly replace binding international treaty law by non-binding UNGA resolution. Significantly no resort to UN treaties was proposed. Instead, use was made of non-binding guidelines where the STSC was in the driving seat. Given that the observance of the rule of law is fundamental for all space actors, this

[243] Gabrynowicz, 'Space Law: Its Cold War Origins and Challenges in the Era of Globalization', *37 Suffolk U. L. REV*. (2004),1041-1066, at 1053.
[244] CoCoSL I, *supra* note 61, at para 56 Future Perspectives.
[245] 'The Next 50 Years in Space', *The Economist,* 20 July 2019, at 9.
[246] CoCoSL I*, supra* note 61, at paras 48-49, 52, and 56 Future Perspectives.

development was regretted. In addition, the number of ratifications has drastically dropped from almost universal acceptance of the Outer Space Treaty to only 18 for the Moon Agreement.[247]

Arguably with so many bypasses, the LSC can hardly claim to be on top of space law making, not even to supervise as a kind of 'guardian' of the other fora and mechanisms creating hard or soft space law in accordance with the space law treaties of 1960s and 1970s.[248] Even inside UNCOPUOS, the LSC gets side-lined when it comes to the development of regulations, most tellingly with the adoption of the SDM Guidelines in 2007, which were expressly not discussed in LSC but only in the STSC, and immediately brought before the main Committee. Moreover, the working mechanism of the LTS Working Group was set-up under the STSC and dealt with legal issues without any formal involvement of the LSC. The LSC has a status to safeguard, if it wants to play a prime role in space law, and even more importantly maintain the coherence of the development of binding and non-binding norms in international space law.

The Committee created by the UN to make international outer space law, has reached a stage in its development where it has stopped making outer space treaties, and hence UNCOPUOS is in a state of evolutionary crisis.

1.9 Theories as to the Causes in the Dearth of Space Law Treaties

UNCOPUOS exhaustion: The Outer Space Treaty signified the creation of an entirely new branch of public international law, the law of outer space.[249] Although strongly marked by Realpolitik, the Outer Space Treaty is and remains of an original and innovative nature. This spirit endured until culminating in the ambitious design exemplified by the 'visionary deposition' of the 1979 Moon Agreement. With the conclusion of the Moon Agreement, the early and dynamic phase of UN law making by treaty in the field of outer space had come to an end,

[247] Other ratifications: OST 112, ARRA 99, LIAB 98, and REG 72; see A/AC.105/C.2/2019/CRP.3*, *supra* note 114.
[248] Schrogl, 'The new debate on the working methods of the UNCOPUOS Legal Sub-Committee', *Acta Astronautica* 105 (2014), 101-108, at 102.
[249] Jankowitsch, 'The Background and History of Space Law', in F. von der Dunk and F. Tronchetti (eds.), *Handbook of Space Law* (2015), 1-28, at 1, 5-8.

and the Moon Agreement itself has been criticized as meaningless.[250] The UN now returned to the practice of declaring legal principles for space by UNGA Resolutions, a practice already employed in the preceding period. The five outer space treaties had exhausted the basic issues on which states were willing to undertake international legal obligations, and an alternative form to legally regulate pressing problems relating to the use of outer space had to be found.[251]

Structural problems in the design of the UN: In setting up the UN and its array of Specialized Agencies, it was not the intention of states to present themselves with a set of white elephants, and they can reasonably be supposed to have wished to confer a genuine efficacy on these institutions.[252] The underlying reason why the UN is only efficacious by fits and starts is the basic concepts and structure of the UN system, and the disregard of certain problems due to arise for international relations, international law, and the UN itself. A world which was far less homogenous than hypothesized in the concepts and structures adopted in the UN Charter, states with radically incompatible political regimes giving rise to the East-West ideological division, and states living at radically different economic levels gradually giving rise to the North-South opposition as decolonization advanced. It would prove singularly tough and awkward to deal, in terms of the 1945 UN Charter, with these enormous challenges raised by what turned out to be a far more heterogeneous world.[253]

This should be considered with the changed economic philosophy: The contemplation of market forces was not on the agenda when the five general multilateral treaties on space law were drafted in the 1960s and 1970s.[254] In its first era, space law functioned as a branch of international law characterized by a treaty regime that aimed at ensuring peaceful uses of outer space for the benefit of humankind.[255] In the wake of the commercialization of outer space and prompted

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[250] Reynolds, 'Space Law in its Second Half-Century', *Journal of Space Law Vol. 31 No. 2* (Winter 2005), 413-422, at 416.
[251] Tronchetti, *supra* note 196, at 7.
[252] Bedjaoui, *supra* note 20, at 10-12.
[253] Weeks, *supra* note 7, at 20 mentioned this unpredictability and slowness in UN treaty-making resulting in a failure to keep pace with the rapid development of commercial applications of space technologies, is not only relevant to outer space law but also other areas, such as aviation.
[254] Fitzgerald, 'Inner Space: ICAO's New Frontier', *79 Journal of Air Law and Commerce* (2014), 3-34, at 15, author's emphasis.
[255] Sreejith, *supra* note 95, at 383.

by the forces of globalization, space law started responding to continuing global changes. In this initial response, a hybrid public-private (commercial space) environment whereby the state provides infrastructure and incentives to the private sector to compete in the market, replaced the earlier state governed and state-controlled system. Consequently, what had been a defense and research and development orientation in space activities shifted towards a market orientation. New actors in the space sector developed new strategies and policies to facilitate the development of the market, resulting in a substantial change in the pattern of knowledge production and focus of research.

A major reason for this development was the new ideology of supply-side economics which triggered a massive political movement that first surfaced in mostly Western parts of the developed world and then became general.[256] Its principal aims were to liberalize and deregulate national and international markets, which consequently reduced the influence of states in economic and social matters. This atmosphere was not conducive to the acceptance of new rules and regulations in outer space, which at the same time experienced the massive entry of particularly aggressive private sector players, motivated by expectations of rapid growth and quick profits. Much of the resistance to the introduction of new legal frameworks came from these new players as well as from Governments displaying an ever-higher degree of reluctance to enter into new treaty commitments of a multilateral character. An example of this change in the political atmosphere was the lamentable fate of the Moon Agreement. Although unanimously adopted by the UNGA, this later change in the political atmosphere created new and unforeseen barriers to the Moon Agreement's ratification as its provisions subsequently appeared to contrast with a more market-friendly world.

The changes in liberal internationalism resulted in a move towards a new form of international cooperation, namely international relations theory: The end of the Cold War brought about a novel redistribution of power among states, markets, and civil society.[257] National governments are not simply losing autonomy in a

[256] Also known as 'the Washington Consensus'; Jankowitsch, *supra* note 249, at 12.
[257] Theoretical approaches in Introduction to Research; Mathews, 'Power Shift', *Foreign Affairs 76* (1997 Jan), 50-67, at 50, available at https://manchester.idm.oclc.org/login?url=https://search-proquest-com.manchester.idm.oclc.org/docview/214271167?accountid=12253 (last viewed 20 March 2020).

globalizing economy, but are sharing powers including political, social and security roles at the core of sovereignty, with businesses, IGOs, and a multitude of NGOs. The most powerful engine of change in the relative decline of states and the rise of nonstate actors is the computer- and telecommunications revolution. The ITU can be considered a hybrid authority that includes state and nonstate bodies and being in the realm of most rapid change, because businesses or NGOs have taken on formerly public roles. The ISO is essentially a business IGO and sets widely observed standards on everything from products to internal corporate procedures to space debris mitigation. International law took a new direction. Global capitalism and more integrated investment and trade may bypass state control, but they require *international public goods* that go beyond the province of the nation-state.[258] That includes the sets of rules, standards, dispute-settlement institutions, and procedures that *international lawyers* considered their province. International markets require *regimes* for telecommunication and transportation, rules and procedures for financial stability and performance of contractual obligations, industrial and product standards, and environmental protection rules. The considerable *corpus juris* produced by UN, composed of both hard and soft law, is an important part of the international public goods required for transnational trade, investment, communications, and other activities carried out mainly through non-state channels. States play a major role in the creation and application of these legal and quasi-legal regimes, but in doing so they transfer a large area of their internal authority to the international domain. The law required by global capitalism extends beyond the law of state-controlled institutions.[259] Much of the lawyers' law applicable to transnational business is created by business practices, private contracts, and organizational routines that, while they do not originate in legislation or judicial acts, nonetheless operate by characterizing private acts as legal or non-legal. The *lex mercatoria* is the historic example of this process, and the *decline of state authority* is often associated with an increased political role for civil society. 'Civil society' is now commonly used for the NGOs that seek to influence public policy, and if used so it reflects a more genuine expression of the peoples' will than

[258] Schachter, 'The Decline of the Nation-State and its Implications for International Law', 36 *Colum. J. Transnat'l L*. 7 (1998), 7-24, at 10-11, author's emphasis.
[259] Schachter, *Ibid.,* at 11-14.

government action. Arguably this is the point where *networking* is beginning to take over. Civil society also embraces functional groups engaged in economic and professional activities, often across national lines. These associations and networks establish their own functional norms and procedures, creating effectively stateless law. In this vision of borderless functional rationality, *civil society creates its own law*, making the political realm of the state largely irrelevant. Although issues of power and justice can arise even in rational functional networks and recourse to higher authority of sovereign or court is likely, recourse to state law may be relatively rare. Proponents envisaged a world of networked enterprises operating under their own functional norms with little or no role for the intervention of government law, such as the borderless law developed by network communities for the global information structure cyberspace. A continuing impact on international law is predicted where global enterprise and communication networks will continue to produce rules and procedures for transnational activities, many of which, like the *lex mercatoria*, will have only a limited link to national and international law.[260] A greater mix and overlap of public and private international law is expected with the line between them rather blurred. Quite possibly, this prediction is being proved in the realm of space law.

Structural problems in the design of UNCOPUOS: Firstly, *UNCOPUOS was forced to develop too quickly*. Space activities strongly influenced events on Earth, plus it opened new dimensions in inter-state relations, placing the security of states in a new light.[261] For these reasons outer space could not remain a legal vacuum. Law followed man into this new sphere of his activities as it did when he extended his power on land, sea, and air. There was some urgency in laying down norms, with many rules and regulations created, but there remains a long way to go to meet the challenge of science and technology. Some of its provisions may be inadequate, some may constitute the mere scaffolding of the law of tomorrow. The *corpus juris spatialis* is by no means perfect or complete on account of the political compromise attainable and the technological restraints existing at the time of the adoption of the legal instruments, and it ought to be reassessed and modified to reflect continuing

[260] Schachter, *Ibid.,* at 23.
[261] N. Jasentuliyana and R. Lee, *Manual on Space Law Volume I* (1979), at xi-xiii.

political and technological progress. Unfortunately, UNCOPUOS was not provided with guidance as to the method of developing international law, and from the start there was a debate on the best method with strong disagreement between the then two space powers.[262] The USSR in 1962 wanted a treaty because of the legal principle that no state can be bound by a treaty without its consent, plus a treaty would ensure that everyone would be effectively bound by whatever had been agreed on. The US was at that time able to command easily a two-thirds majority in the UN and was equally insistent that it wanted a UNGA resolution lacking binding force, and because of its simplicity.[263] Preparing a treaty and obtaining the required number of ratifications was a time-consuming process, whereas the LSC was in a position to act immediately by preparing a draft resolution for action by the UNGA. An extension of the argument of simplicity is that of flexibility.[264] Australia changed from supporting USSR on a declaration on basic principles, as they foresaw great advantages especially in a new field of law in making a start with instruments in resolution form, in which unanimity could be achieved without loss of flexibility, with full legal form developed later on.[265] In the end, the USSR and its supporters acquiesced to the US position, and as a result three substantive resolutions were adopted before switching over to the treaty mode.[266] Thus, there was a gap of 19 years between resolutions, during which period the UNCOPUOS proceeded by way of treaty. The UNGA in 1982 with the DBS, when the West no longer commanded a majority and the Group of 77 more or less held sway, reverted once more to passing resolutions, and this time by majority vote.[267]

Secondly, the *limited mandate of UNCOPUOS*. The UNGA decided not to merely add the word 'space' to the remit of an existing Committee but saw fit to entrust such matters to a specifically designated Committee, recognizing not only the peculiar problems involved in the material but also that here was a *tabula rasa*

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[262] Bin Cheng, *supra* note 242, at 168-169.
[263] A/AC.105/C.2/SR.1 (28.5.62), Report of the Committee on the Peaceful Uses of Outer Space (A/5181) [First and Second sessions of the Committee, 1962], at 9.
[264] Bin Cheng, *supra* note 69, at 170.
[265] A.AC.105/C.2/SR.23 (25.4.63), Report of the Committee on the Peaceful Uses of Outer Space (A./5549), at 18.
[266] Bin Cheng, *supra* note 69, at 170 (and 154).
[267] CoCoSL III, *supra* note 151, at para 1 DBS.

calling for new thinking and procedures.[268] This UNGA initiative was no doubt much assisted by the appointment in August 1962 of Manfred Lachs, then a Polish diplomat, to the office of Chair of the LSC of the UNCOPUOS.[269] A pragmatist, he initiated the work of the Committee with artistic elegance, appealed to the legal community to shed its abject feeling of inferiority, evoked the humanness of scientists, and underlined the need for a professional fraternity. Lachs' vision was sublime, based as it was on the understanding that the world is confronted with two conflicting ends, namely science and society. Science cannot single-handedly guide humankind to achieve its goals, for it cannot affect the transition from facts to norms and must be subjected to philosophical scrutiny which can comprehend societal values and effect the transition from facts to norms smoothly. On the other hand, lawyers engaged in philosophical criticism in hermitic isolation will be too thinly supplied with facts and likely to misapprehend the values. Both scientists and lawyers should carry on an effective dialogue in order to synthesize facts and norms, which can draw benefit from science and technology for constructive human purposes. This vision was realized by creating two Subcommittees to effect a dialogue between scientists and lawyers as an imaginative and innovative effort at international legislation within the UN. Arguably, it is to be regretted that UNCOPUOS was never provided with detailed guidance as to how it should function, as evidenced by the difficulty to insert new and timely items on its agenda and the length of UNCOPUOS's decision-making.

Thirdly, the imposition of *consensus decision-making*, which was originally proposed by one political group to safeguard its own interests, but in fact became a general assurance to all and in particular to the space powers themselves.[270] In practice the consensus rule encouraged compromise. As voting had to be avoided, onerous efforts were made in the negotiations in order to accommodate a range of positions, for example the compromise made right at the initial stage on the question of which issues were to be given priority. The space powers and the non-space powers all wanted to deal first with those issues of special interest to them, but the concession was to give priority to items of special interest to the space powers (such

[268] Lyall and Larsen, *supra* note 36, at 15.
[269] Sreejith, *supra* note 95, at 341-346.
[270] Jasentuliyana and Lee, *supra* note 261, at xiii.

as the general principles and assistance to astronauts) in exchange for the willingness and goodwill to negotiate on items of special interest to the non-space powers (such as registration of space objects and liability for damage arising from space activities). Ironically, when consensus was departed from in UNCOPUOS with the DBS Principles, it produced the only UNGA Resolution on outer space considered a failure.[271]

Consensus decision-making contributed to the present inadequacies of the space law regime.[272] While this approach has much to recommend itself, since it ensures that the principles formulated would gain wide, if not universal, acceptance, it has also served to limit the principles to vague and abstract terms. This resulted in several definitional issues, including the uncertain demarcation between airspace and outer space, which continue to hinder the adequate provision of law to private space activities. The considerable time UNCOPUOS has been seized with the definition/delimitation of outer space is an example of serious problems with the serviceability of consensus diplomacy.[273] A consensus decision-making method that compromises everything is the major limitation with UNCOPUOS having limited ability to reach broad agreement on new space-related subjects or producing any new binding legal norms. Admittedly it has been successful in soft law development of principles, resolutions, and guidelines supplementing the set of space law treaties.[274] The failure of UNCOPUOS to solve the delimitation question lies at the door of the consensus system, as a single opposition remains sufficient to obstruct any resolution of treaty proposing a definitive solution to the matter.[275] Therefore, without general agreement, multilateral discussions on topics may remain perpetually open, with the necessary support being attracted neither for the resolution of the issue, nor for its withdrawal from the LSC's agenda.

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[271] Lyall, 'The Role of Consensus in the ITU', in M. Hofmann (ed.), *Dispute Settlement in the Area of Space Communication* (2015), 33-42, at 34 and FN 5; UNGA Res. 37/92, *supra* note 107.
[272] Lee, *supra* note 38, at 206.
[273] C. Christol, *Space Activities and Implications: Where From and Where To at the Threshold of the 80's* (1981), at 79.
[274] Ram Jakhu, and J. Pelton (eds.), *Global Space Governance: An International Study* (2017), at 53.
[275] Bittencourt Neto, 'Delimitation of outer space and Earth orbits' in Y. Failat & A. Ferreira-Snyman (eds.), *Outer Space Law Legal Policy and Practice* (2017), 43-54, at 46.

The consensus practice was measurably influenced by the larger presence in UNCOPUOS of new developing countries, which started identifying with the substance of space.[276] Even more delay in negotiations resulted as one state could hold up progress on text.[277]

Galloway warned in 1979 that it cannot be expected that the consensus method, in and of itself alone, will automatically produce conclusive results in all cases.[278] However, the most important issues were decided and made a part of international law, and she considered the use of consensus in the negotiation of the texts of outer space treaties not to have resulted in the adoption of the least common denominator on which agreement could be reached. Unfortunately, the main problem with consensus as a decision-making system is precisely that unanimous support can only be achieved on minor points, thus on the insignificant matters of low-level concern. It takes time to reconcile differing viewpoints expressed on issues involved in any problem, depending on a variety of factors such as the urgency for decision generated by perceived dangers which must be avoided at all costs, political and economic factors which may be linked to other problems and cause delays, irreconcilable elements combined with a sense that the subject has not ripened for final disposition, the frequency with which decision-making bodies meet, and the lack of an institutional structure with authority to make final decisions.

Thirdly, *UNCOPUOS was not designed for the new majority in the UN*. The early development of space law was influenced by the major space powers, but now it has become the concern of the new majority of developing countries from Africa, Asia and Latin America that became dominant in the UN from the 1960's.[279] Developing countries saw a need to use this new technology for the benefit of their economic and social advancement, and at the same time feared that space benefits would remain limited to a small number of advanced industrialized countries. U Thant as Secretary-General of the UN submitted a memorandum to UNISPACE I to the effect that the space age was increasing the gap between the developed and

[276] Christol, *supra* note 188, at 844.
[277] Jasentuliyana and Lee, *supra* note 261, at xiii-xiv.
[278] Galloway, *supra* note 72, at 8-9; see also Appendix A: Participation Observation.
[279] Jankowitsch, *supra* note 249, at 9-10.

developing areas. As a result, an effort was made to give space law or its basic principles a direction that would also benefit developing countries, and the 1996 Declaration is an appeal to combine the principle for the freedom of the exploration and utilization of outer space with a reminder to space powers to fulfill their obligation to conduct these activities for the benefit of all countries.[280]

Ad Hoc UNCOPUOS started with 18 members, and membership has since increased to 100.[281] Although this meant that via UNCOPUOS about 50% of UN membership, both developed and developing countries, gets potentially involved in the development of space law, this is an unwieldy size. Deficiencies in expertise, interest, and commitment, contributed to a slowing down of the rate of productive work. Although enlargement does represent a democratisation of the development of international law, this may lead to a lowering of standard of the eventual text to reflect all voices and may reduce the product to the lowest common denominator. Not all members of UNCOPUOS actually do attend sessions, and some send inexperienced delegates who lack standing such as lower rank embassy officials for whom space questions are not a priority.[282] Some embassy officials read prepared statements from capital, and are unable to successfully participate or debate, and cannot assent to text without further instruction.

With so many more states and non-state actors actively participating in space activities, the competing interests have become more diverse and with very divergent political agendas and space-related objectives.[283] The five core outer space treaties, products of the Cold War, cannot handle the more complex geopolitical power of today involving more space actors.

Fourthly, the *melding of military and peaceful uses of outer space.* UNCOPUOS was supposed to concentrate on the peaceful uses of outer space only. The framers of the outer space treaties did not envisage the line dividing civilian and military activities in the aerospace industry to be as blurred as it is today.[284] Issues relating

[280] Not once between 2011-2015 was the advance of space law raised as a topic of concern in African Group meetings at UNCOPUOS, see Annexure A: Participation Observation.
[281] Lyall and Larsen, *supra* note 36, at 15-16; membership numbers update from *supra* note 77.
[282] F. Lyall and P. Larsen, *Ibid.*, at 18.
[283] Ram Jakhu and Pelton, *supra* note 274, at 51-52.
[284] Lee, *supra* note 38, at 195.

to the prohibition of military activities in space have brought into question the legality of many activities already being conducted in space, such as the military use of Global Positioning Systems ('GPS') and remote sensing data from civilian satellites. Remote sensing and direct broadcasting systems also raised widespread fears in the developing world of eroding national sovereignty. Perhaps the word 'peaceful' in the Outer Space Treaty should have been defined, as it was based on the Antarctica Treaty of 1959 which was meant to demilitarize Antarctica.[285] Both the cornerstone Outer Space Treaty, and the Moon Agreement, do allow for certain military activities and makes international law applicable to the Moon and other celestial bodies which are 'reserved for exclusively peaceful purposes'. This is hotly disputed in UNCOPUOS by particularly South American nations. At the same time the US has consistently equated 'peaceful' with 'non-aggressive' and not 'non-military' and emphasized their international law right to 'self-defence'.

Unfortunately, there is an increasing intermingling of military and commercial space applications, often referred to in UNCOPUOS as 'dual use' systems. Many space systems intended for civil or commercial uses have simultaneous potential for military applications. The US government is increasingly dependent on the commercial space sector to provide essential services for national security operations including satellite communications and remote sensing, which presents a dramatic shift away from the overt separation of military and civilian programmes that for decades has characterized US activities in space. In the US there was a gradual broad acceptance of peaceful purposes as encompassing anything except aggressive military use, and it believes it has the right of self-defense if one of their commercial satellites, used for military purposes, gets cyber-attacked.[286] It was even alleged that space tourism may allow weaponization of outer space, thus via commercial routes, as Article IV of the Outer Space Treaty only outlaws the placing

[285] Petras, 'The Use of Force in response to Cyber-Attack on Commercial Space Systems – Reexamining 'Self-Defense' in Outer Space in Light of the Convergence of U.S. Military and Commercial Space Activities', 67 *JALC* (2002), 1213-1268, electronic copy provided by UP library not numbered; see also Appendix A: Participation Observation.

[286] von der Dunk, 'International Organizations in Space Law', in F. von der Dunk and F. Tronchetti (eds.), *Handbook of Space Law* (2015), 269-330, at 313-317; ESA is involved in the Global Monitoring for Environment and Security programme via GMES/Copernicus, American soldiers utilize INMARSAT satellite connections, and INMARSAT's Ka-band broadband was developed to meet American military needs such as unmanned aerial vehicle downloads.

of nuclear weapons 'or any other kind' of WMD in orbit, and the establishment of military bases or fortifications on the Moon and other celestial bodies. It does not forbid peaceful or defensive uses of outer space, and as a result it was speculated that a SpaceShipOne-type craft can mount and launch an anti-satellite weapon.[287] Even the STSC warned that by their very nature as well as their dual use attributes, ADR technology (such as lasers, robotics, space sails, solar concentrators, electrodynamic tethers, drag augmentation devices, and ultra-short optical pulse) come with very significant strategic and military implications.[288] ADR technology can be used for ASAT tests, and what matters is the capability of the technology, not the intent behind it. The unfortunate and constant bickering in UNCOPUOS as to whether an activity is a peaceful or a military use of outer space may be one of the reasons why UNCOPUOS struggles in its treaty drafting efforts.[289]

Inadequate Provision for Privatization and Commercialization of Outer Space: The non-commercial, governmental origins of the space industry, intrinsically intertwined with national pride and defence, led to the notion that space was the domain of Governments willing to bear the costs of subsidizing an unsustainable launch industry.[290] However, the principal forces in space law development academia and military, have been replaced by commerce.[291] Technical development, lowering of costs and the availability of small, energy efficient computers, innovative manufacturing processes, and new business models for launching rockets, has opened up the outer space playground for developing countries and private actors.[292] This lowering in the costs of manufacturing and

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[287] Reynolds, 'International Space Law in Transformation: Some Observations', *6 Chi.J. Int'L* (2005-2006), 69-80, at 71-76.
[288] A/AC.105/C.1/2012/CRP.16, Active Debris Removal — An Essential Mechanism for Ensuring the Safety and Sustainability of Outer Space; A Report of the International Interdisciplinary Congress on Space Debris Remediation and On-Orbit Satellite Servicing; at 37.
[289] See Appendix A: Participation Observation.
[290] Hobe, 'The Impact of New Developments on International Space Law (New Actors, Commercialisation, Privatisation, Increase in the Number of 'Space-faring Nations')', *Rev. dr. unif.* (2010), 869-882, at 869; Bromberg, 'Public Space Travel-2005: A Legal Odyssey into the Current Regulatory Environment for United States Space Adventurers Pioneering the Final Frontier', *70 J. Air & Com* (2005), 639-671, at 639; *Freeland*, 'Fly me to the moon: How will International Law cope with Commercial Space Tourism?' *Melbourne Journal of International Law* (May 2010), 90-118, at 90.
[291] Lewis and Lewis, 'A Proposed International Legal Regime for the Era of Private Commercial Utilization of Space, *George Washington International Law Review* (2005), 745-767, at 746.
[292] Pecujlic, 'European Space Policy Institute's Comprehensive Analysis on Adopting New Binding International Norms Regarding Space Activities', in V. Rao, V. Gopalakrishnan and K. Abhijeet (eds.) *Recent Developments in Space Law Opportunities & Challenges* (2017), 141-163, at 142-143.

launching of space objects has made a 'process of democratization' possible in the realm of space. In this so-called 'Second Space Race' the private sector has taken over the primary role states had previously played in fostering technological development, and is now the driving engine thereof. Simultaneously, the legal framework governing all space activities which was created more than fifty years ago, has become to a large degree outdated or insufficient. This causes problems as the five outer space treaties did not provide answers for new types of missions that were technologically unforeseen at the time of their creation and now possible due to private sector investments, and did not define clear limits or responsibilities nor provide secure benefits for the involvement of private actors. The main challenges in space activities now are not primarily technical but, above all, legal. Space law is currently facing a decisive question on how to regulate the present phase of technological development, so that responsibilities between state and private industry are clearly delineated, investments are further stimulated, anarchy and destructive rivalries are prevented, and space's environment is not endangered.

Even before the end of the Cold War many commentators began to realize that the legal framework for international space law was incapable of dealing with the commercial development of outer space.[293] Activities such as remote sensing, weather prediction, DBS, telecommunications, GPS, and human settlement on permanent space stations have torn apart the thin fabric of the existing space law framework in several ways. Firstly, in the heat of the Cold War, important fundamental terms of the outer space treaties were left vague and ambiguous due to the inability of the USSR and the US to agree at a detailed level. This created a climate of instability and uncertainty detrimental to the development of commercial space activities as firms require legal certainty with respect to their rights and liabilities before making large investments. Secondly, the present liability regime which apportions strict liability to countries and companies responsible for damage caused by space debris is commercially inadequate. The allocation of liability and the means of resolving disputes have to be streamlined and clarified in order to address the needs of modern commercial space. Thirdly, the failure of the international legal framework to provide for limited property rights will continue

[293] Lee, *supra* note 38, at 195-196.

to hinder exploitation of natural resources and other forms of permanent space utilization which has become economically feasible. The continuing controversy over the CHM economic implications remains a significant hindrance to any further large-scale development in outer space. The commercialization of outer space has been stunted by the inefficiencies of the international law regulating its use, in particular the CHM requirement that prohibits appropriation.[294] The ownership of permanent structures that might be constructed on celestial bodies, including the Moon, will vest in the company or state building the structure, at least to the extent it is placed 'on a celestial body' in terms of Article VIII Outer Space Treaty.[295] There is an apparent contradiction in that there are no clear rules regarding any structure essentially made from locally available resources on the celestial body. Anything taken from space and returned to the earth becomes the property of the person, company, or Government that performs the action, given the absence of UN treaty provisions prohibiting such ownership. The outer space treaties contain no explicit provisions about intellectual property rights for things made or invented in space, hence the International Space Station Intergovernmental Agreement ('IGA' and 'ISS') and the NASA Directive on Space Station Intellectual Property had to provide guidance re inventions on the ISS. Although the right of communications satellites to use the spectrum, allocated by governments and the ITU, is not exactly a traditional property right, it does grant use of a limited resource in space for business purposes for the lifetime of the particular satellite, and Tonga managed to sell such ITU allocated rights.[296]

It is with these concepts in mind that mining in outer space should be considered: The CHM principle in the Moon Agreement does not address proprietary rights to the satisfaction of entrepreneurs.[297] Most national and international laws are silent with respect to mining, salvage and dispute resolution in commercial space

[294]Landry, 'Tragedy of the Anticommons: The Economic Inefficiencies of Space Law', *Brooklyn Journal of International Law* (2013), 524-578, at 524 and 577-578.
[295] Johnson, *supra* note 57, at 1481-1482; Herzfeld and von der Dunk, 'Bringing Space Law into the Commercial World: Property Rights without Sovereignty', *6 Chi.J.Int'L* (2005-2006), 81-99, at 81-84.
[296] Constitution of the International Telecommunications Union, available at https://search.itu.int/history/HistoryDigitalCollectionDocLibrary/5.22.61.en.100.pdf (last visited 30 May 2022), Article 1; Riddick, 'Why does Tonga own Outer Space?' *Air & Space L* 15 (1994), 15-29, at 19.
[297] Johnson, *supra* note 57, at 1481-1482; Herzfeld and von der Dunk, *supra* note 295, at 81-84.

activities.[298] There are no common safety standard and procedures for space operations, and current activities in space may be unsustainable in the long run without uniformly implemented debris mitigation measures, well-coordinated debris remediation operations, and global STM.[299] The legal structure of outer space legislation strictly prohibits the appropriation of territory on celestial bodies and in outer space, but whether this extends to natural resources in space remains unclear.[300] The Outer Space Treaty set certain conditions for the exploitation of resources as one possible type of the 'use' of outer space. The question was basically left for the future international community to come up with an agreement on the conditions for such exploitation.[301] The sensible conclusion is that resources from asteroids can be used, although not based on property rights, if one sidesteps the normal convoluted academic discussion on the CHM principle which has bedeviled this topic for so long. A possible solution to the paradox lies in distinguishing between the activities: Although 'exploitation' is not mentioned *per se* in the Outer Space Treaty, 'use' is defined to include exploitation; And the crucial question becomes when does exploitation become appropriation, and can one engage in asteroid mining without appropriation?

The Outer Space Treaty and Moon Agreement, the most relevant treaties for space tourism's evolution as a commercial endeavour, cover space exploration and travel and use, but do not address the specific legal questions dealing with the implications of tourist space travel in the 21st century. The drafters of those international instruments envisioned a different sort of world, one in which space travel was a largely governmental endeavour, dominated by scientists, astronauts, and other functionaries.[302] Arguably space tourists may qualify as 'envoys of mankind' under the Outer Space Treaty, but in the absence of a definition of space tourism a possible definition is 'any commercial activity offering customers' direct or indirect

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[298] Ferrao, 'Developing a System of Dispute Settlement for the Commercial Activities in Outer Space', 68(3) *Arbitration* (2002), 250-252, at 250.
[299] R. Jakhu, T. Sgoba and S. Paul, *Need for an Integrated Regulatory Regime for Aviation and Space: ICAO for Space?* (2012), xi.
[300] Hobe and De Man, 'The National Appropriation of Outer Space and its Resources', *IISL/ESCL* Symposium (27 March 2017), presentation slides available at https://www.unoosa.org/documents/pdf/copuos/lsc/2017/symp-08.pdf (last visited 18 Dec 2017).
[301] De Man, 'The exploitation of naturals resources in outer space', in Y. Failat and A. Ferreira-Snyman A. (eds.), *Outer Space Law Legal Policy and Practice* (2017), 243-256, at 247.
[302] Reynolds, *supra* note 287, at 71.

experience with space travel' which may be permitted as an Article I of the Outer Space Treaty 'use of space' and 'free use of space'.[303] State practice would appear to allow for overflight of states by space vehicles, but there is no international regime in place to govern private contracts of carriage of persons in space as there is for air, rail and maritime passengers.[304] Suborbital and orbital space tourism give rise to conceptually difficult legal questions involving liability, property rights, and legal status of tourists, which are complicated by the limitations of the space legal regime and its CHM categorization.[305]

The effect of the commercialization and privatisation of outer space is such that that the myth of the start of the 'Space Age' may be dispelled.[306] It was not the launch of Sputnik, or the feats of Gagarin, Armstrong or Tito that marked the beginning of a new era wherein private citizens could travel into space; it was the first ever privately funded, manned spaceflight flight of SpaceShipOne on 21 June 2004, thus *public* space travel. To overcome regulatory impediments, space law is urged to engage private industry, lower barriers into the markets and help manage risk and liability. It was even claimed that soft law norms may, in the long-term, become more successful in incentivizing actors to maintain global interests.[307]

More assertive national interests: The important rejection of new multilateral treaty-making in space law came from the US, which in its National Space Policy in 2006 stated that 'the United States will oppose the development of new legal regimes or other restrictions that seek to prohibit or limit US access to or use of Outer Space.'[308] International space law was first created as a reaction to and a facilitator of the political climate.[309] Since then the primary goals of the US, in particular, have shifted to focus on the commercial space sector. While the US

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[303] Freeland, 'Up, Up and... Back: The Emergence of Space Tourism and Its Impact on the International Law of Outer Space', 6 *Chi.J. Int'L* (2005), 1-22, at 6 ('Freeland (Up)').
[304] O'Brien, *supra* note 37.
[305] Freeland, *supra* note 303, at 1 and 2-3.
[306] Bromberg, *supra* note 290, at 639*;* own emphasis.
[307] See in general Jakhu, Sgoba and Paul, *supra* note 299.
[308] *National Space Policy of the United States of America,* of 31 August 2006, Section II, para. 7, available at www.whitehouse.gov.sites/default/files/microsites/ostp/national-space-polciy-2006.pdf (last visited 20 March 2020).
[309] Blasingame, 'Nurturing the United States Commercial Space Industry in an International World; Conflicting State, Federal and International Law, *Mississippi Law Journal* (Winter 2010), 741-787, at 741-742.

interests have evolved, the international law stayed the same, and tension thus resulted. The UN international law-making machinery had proven to be too slow and too unpredictable to keep pace with the rapid development of commercial applications of space technologies, and the US changed its stance regarding international cooperation and space law making within the UN.[310] This shift to the domestic sphere triggered an increase in commercialization and privatization and led to laws to facilitate the commercial success of space industries such as telecommunications, direct television broadcasting, remote sensing, and space transportation and launch services. This, in turn, led to the widespread use of cellular phones, cable television, and the Internet. Apart from a body of space law that regulates inter-state relationships, there is now an increasing mass of law, shaped and constrained by international agreement on the public international law of space, which regulates commercial activities.[311] Launch contracts, insurance and intellectual property are matters for national legislatures and courts. The result is a complex web of international, national, and state laws which to handle fundamental concerns and policy goals of state, national and international law and actors in outer space.[312]

Consequently, resources once deemed the 'province of mankind' according to international space law treaties, are now being revaluated.[313] In this space law development phase, the dominant ideology gravitates towards free marketization. The new space race is very different from the old Cold War space race, as demonstrated by the emerging space tourism industry. More one of space entrepreneur against the background of legalization of private space travel. The commercial implications of outer space development now rank higher than considerations of national prestige.

Referencing the function of an international lawyer and participant observation methodology,[314] in summary it is hard to disagree with the European Space Policy Institute ('ESPI') Report which highlighted four factors to indicate a (possible)

[310] Weeks, *supra* note 7, at 20-21.
[311] Lyall and Larsen, *supra* note 36, at 509.
[312] Blasingame, *supra* note 309, at 742.
[313] Weeks, *supra* note 7, at 36.
[314] See Introduction to Research *supra.*

basis for a more complex explanation of the reasons for the current stalemate.[315] There is today a higher number of states involved in the space domain than during the Cold War, resulting in the seemingly cooperative space domain to have actually become more competitive than ever, and which affects the commercial sphere more than the security realm. First, national interests are more assertive, and national space agencies see little merit in accepting new legal obligations of an international character and instead prefer to cast their national or international relations in a bilateral form or project-based regulations, where benefits or necessities outweigh the risks. Hence, governments themselves are displaying an ever-higher degree of reluctance to enter into new treaty commitments of a multilateral character. Secondly, since the 1980's there is an evident rise of the private sector, leading to the domination of the new economic ideology of neoliberalism, colouring the course of business in the space domain as well. The dominant trend is liberalization and deregulation of national and international markets, which trigger weaker influence of states and governments. This economic atmosphere and aggressive private sector players, which are seeking only quick economic benefits, is not conducive to the acceptance of new rules and regulations in outer space. Thirdly, even though the number of nation-states has grown, there is still an insufficient number of new states involved in the space activities. Out of 193 UN Member States, only 100 are UNCOPUOS members.[316] The rising trend of non-state, private actors entering the sector has not yet reached its maturity, and the space domain is in a growth stalemate as well. Thus, on the one hand there is a sufficient number of states and pressure from the private sector preventing new binding agreements to be reached; at the same time ironically there is an insufficient number of states and pressure of the private sector recognizing the need for new comprehensive, consistent and international legal framework.[317] Lastly, a factor of law-making process itself. The requirement of consensus, lack of flexibility for different nations' development levels, and the lack of having a mechanism to adopt new regulations through secondary norm mechanisms, have left the space community in a checkmate position. UNCOPUOS, as a subsidiary body reporting to the UNGA,

[315] Pecujlic, *supra* note 292, at 144-145.
[316] Membership update *supra* note 77; note ESPI Report 57 mentioned 83 states only.
[317] Pecujlic, *supra* note 292, at 145.

has a strong political character. ESPI concluded that the existing law-making process is not able to cope with the overwhelming influence of politics and that alternatives need to be sought to transcend the stalemate.

These highlighted causes of the evolutionary crisis in space law can be considered interrelated, for example the US would not have abandoned international- for domestic legislation if the UNCOPUOS system had adequately addressed the legal issues on the privatization and commercialization of outer space.

1.10 Analysis of the UNCOPUOS working method

The LSC, via the Main Committee, recommends the draft text of outer space treaties to the UNGA. The Political Committee of the UNGA considers the report before the recommended instrument is adopted by UNGA, which provides an opportunity to those not belonging to UNCOPUOS to study and comment. UNGA then adopts a resolution incorporating the text of the recommended treaty in an annex. Initially this method appears to have worked well.

Unfortunately, UNCOPUOS members have an automatic veto right in any of the two Subcommittees and the main Committee, by exercising their rights as sovereign states not to agree to the consensus. Further political interference is allowed on the next two levels, the Political Committee of the UNGA and the UNGA itself. In order to advance any treaty text through these steps, only the lowest common denominator acceptable to all members will succeed, and that will affect the quality. This is further bedeviled by the fact that all UNCOPUOS member states also serve on the LSC and the STSC, which compete for time allocation and budget from the main Committee on the Sub-Committees. The UNCOPUOS working method carried in it the germ of its own destruction: UNGA Resolutions set out the desired route in general non-binding terms, and the expected end-result of a detailed and legally binding treaty could not after 1979 materialize due to the consensus working method. The UN member states were so busy playing multilateral politics that after the Moon Agreement they were unable to produce any treaty text to be forwarded to a Diplomatic Conference. Moreover, in order to reach consensus on the Moon Agreement, the CHM principle was left too vague, which led to the major

spacefaring nations turning their back on the Moon Agreement once the developing nations interpreted it as a prohibition on any property rights on celestial bodies.[318]

Even in the now apparently popular area of space sustainability, UNCOPUOS working methods come in for criticism. Space efforts are highly disaggregated in many countries, and the process by which each country informs and develops its political positions on space-related issues can vary widely.[319] Some countries will go to their space agencies or space advisory bodies for input first, while others have content expertise focused on either the ministries of science or of foreign relations. UNCOPUOS as a forum for the discussion of space governance issues, specifically in its ability to implement collective-choice arrangements, is extremely limited as it operates on a consensus basis and excludes non-state actors:[320] The Cold War environment within which UNCOPUOS was created is blamed for the creation of a consensus body containing two main voting blocs. On the one hand the West, aligned with the US, and on the other the Warsaw Pact, aligned with the USSR. What enabled the successful negotiation of the multilateral space treaties is the fact that the bulk of the negotiations were essentially bilaterally only. The UNCOPUOS collective-choice arrangements focusing on states is a drawback, as IGO and NGO permanent observers cannot vote plus commercial entities are deliberately excluded (except when specifically included in a delegation). As commercial industry, primarily multinational companies, provides many of the most common space services this exclusion limits the effectiveness of UNCOPUOS. It is increasingly difficult to recognize the relevance of, let alone concede any authority to, a mechanism or institution that has shown itself ineffective and prone to bureaucratic gridlock.[321]

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[318] CoCoSL II, *supra* note 126, at para 2 Moon.
[319] SFW, *supra* note 167; Also *Secure World Foundation Symposium 'Progress and Planning Ahead: International Best Practices for Outer Space Sustainability'*, October 21, 2016 in Washington, DC, available at https://swfound.org/events/2016/progress-and-planning-ahead-international-best-practices-for-outer-space-sustainability (last visited 20 January 2020).
[320] Johnson-Freese and Weeden, 'Application of Ostrom's Principles for Sustainable Governance of Common-Pool Resources to Near-Earth Orbit', *Global Policy Volume 3. Issue 1* (February 2012), 72-80, at 77.
[321] Johnson-Freese and Weeden, *Ibid.*, at 80 saw UNCOPUOS as the body where next steps are to be made, and academics and practitioners to contribute preliminary work in definitions and possibilities.

The way UNOOSA was structured, and in particular the lack of specific concentration on the study of legal issues and the preparation of draft international instruments on space law, must be criticized. In addition, UNOOSA's two sections are stretched due to mission-creep.[322] The Space Applications Section organizes and carries out the UN Programme on Space Applications. This task originated in the shifting emphasis from scientific exploration of outer space to the practical applications of space technology, and UNOOSA got increasingly involved in implementing decisions of UNCOPUOS and its subsidiary bodies related to the promotion of international cooperation in the uses of space technology for economic and social development. Beginning with UNISPACE I in 1968, the Office has carried out programmes designed to disseminate information and provide training in the practical applications of space technology, in particular for developing countries. After UNISPACE II in 1982 UNGA Res. 37/90 of 10 December 1982 expanded the mandate of the Programme on Space Applications to include promoting the development of indigenous capabilities in the developing countries. In addition, UNOOSA's Committee, Policy and Legal Affairs Section ('CPLA') provides substantive secretariat services to UNCOPUOS, its two Subcommittees and its working groups, and also to the Working Group of the Fourth Committee of the UNGA when it considers the item on international cooperation in the peaceful uses of outer space. UNOOSA leads UN-SPACE, the Inter-Agency Meeting on Outer Space Activities, and CPLA convenes and services its sessions. Comprising of staff with legal, policy and economics background, the CPLA team works closely with UN member states in supporting their capacity building efforts in space activities and in building national space infrastructure, by organizing workshops on space law and policy, as well as on organizational questions relating to international cooperation in space activities and on UN space-related activities. CPLA works with other actors, such as regional organizations and mechanisms, in support of their efforts and cooperation in space activities. It also prepares and distributes reports and publications on international space activities and on international space law.

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[322] Available at http://www.unoosa.org/en/aboutus/structure.html (last visited 2 Sept. 2020); its staff refers to the entity as 'the Office', but for consistency UNOOSA has been utilized.

1.11 Attempts to Revitalize the Legal Regime for Outer Space

An urgent need for a revitalized legal regime for outer space was repeatedly stressed.[323] Technological progress and new and multiple uses of outer space created new problems and challenges for which legal solutions are just as important as technological ones.[324] The existing international space law was not seen as comprehensive and exhaustive or addressing every conceivable activity in outer space.[325] The increasing pace of globalization and the ever-rapid advances in technology will also test the capacity of 'international organizations', in particular their relevance in adopting rapid and effective means of rulemaking that are politically acceptable to their members.[326] The ESPI, however, was of the opinion that the political context itself cannot be an all-encompassing answer, as during a the Cold War turbulent, conflict-ridden era legal breakthroughs were made, whilst in the post-Cold War period paralysis is encountered.[327]

There were calls for the amendment of the outer space treaties to cater for the introduction of the sustainable development concept,[328] and to define 'space object' so central to the five outer space law treaties.[329] Moreover, the reference to non-governmental entities in Article VI of the Outer Space Treaty conceivably includes the private sector but also may have primarily been intended to permit launches by universities and research institutes or for telecommunications purposes. The Outer Space Treaty, rooted in the sovereign prerogative of the state under international law and as a Cold War era instrument, is still characterized by a primary focus on states as actors in outer space, and herein lies a conundrum. Some analysts

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[323] For example, more than 40 years ago by N. Matte, *Space Policy and Programmes Today and Tomorrow (The Vanishing Duopole)* (1980), at 115.
[324] Jankowitsch, *supra* note 249, at 13.
[325] Johnson, *supra* note 13, at 13.
[326] Kwakwa, 'Some Comments on Rulemaking at the World Intellectual Property Organization', in E. Kwakwa (ed.), *Globalization and International Organizations* (2011), 179-195, at 195.
[327] Pecujlic, *supra* note 292, at 141, 143-144; also, in general A. Froehlich and J. Pecujlic, *European Space Policy Institute Report 57 Mechanisms for the Development of International Norms regarding Space Activities,* May 2016, available at https://espi.or.at/archive/espi-report-57-mechanisms-for-the-development-of-international-norms-regarding-space-activities-published-and-available-online (last visited 21 October 2018).
[328] Prasad, *supra* note 231, at 173; Li Bin, 'Weeden & Chow: Commentary from a legal perspective', *Space Policy 28* (2012), 177-179, at 178.
[329] Fitzgerald, *supra* note 254, at 16-18; Smith, *supra* note 56, at 45-46.

suggested that attempts to revise the Outer Space Treaty should be discouraged, because once opened, attempted revisions could lead to decades of debate and negotiations, whilst others argued that it makes more sense to address its few ambiguities and shortcomings in ancillary treaties expanding upon its existing provisions.

Unfortunately, the amendment of any multilateral treaty can be complex and problematic. All five outer space treaties contain the same amendment clause:[330]

> Any State Party to the Treaty may propose amendment to this Treaty. Amendments shall enter into force for each State Party to the Treaty accepting the amendments upon their acceptance by a majority of the States Parties to the Treaty and thereafter for each remaining State Party to the Treaty on the date of acceptance by it.

Arguably these are automatically binding amendment mechanisms, and thus there is no need to rely on residual rules set out in Articles 40 and 41 of the VCLT. Once an amendment has been approved by the specified percentage of the members it is binding on all. What the outer space treaties do not specify is what precisely is meant by a 'majority'? Normally that is a simple majority, thus just over one half of the voters who actually vote and disregarding abstentions.[331]

The IISL organised a workshop with UNCOPUOS in 2000 to consider whether some principles of the Outer Space Treaty, and of the other outer space treaties, need clarification and their application adapted in the light of new phenomena, practices and issues?[332] The conclusion reached was that while the existing UN space treaties do not need formal revisions, they should be supplemented and developed by UNCOPUOS and its LSC via further legal documents, be they new sets of principles, and/or interpretative UNGA resolutions, or new legally binding instruments. It is telling that a UN workshop did not consider the formal amendment of the five outer space treaties, and in fact listed norm-making via new treaties after soft law. The 2000 IISL workshop conclusions were confirmed indirectly. First, the rejected suggestion to amend the Moon Agreement by using the example of the

[330] Article XV OST; Article 8 ARRA; Article XXV LIAB; Article IX REG; and Article 17 MOON.
[331] Schermers and Blokker, *supra* note 21, at para 817.
[332] United Nations Workshop, *supra* note 242, at 19.

Antarctic Regime where decisions are taken only by states active in Antarctica, and interested others send observers to and participate in Consultative Meetings without decision-making powers.[333] The idea was for something similar for celestial bodies, in order to systemize mining and regularise the activities of entrepreneurs. Secondly, the consideration of SDM, the most important and legally challenging problem for space activities at the time, did not involve any consideration of the amendments of any of the outer space treaties, and instead the normative process was initiated under the auspices of the IADC and later endorsed in the UNGA.

The above demonstrates the drastic change in the normative process on space activities from the creation of binding treaties to the adoption of legally non-binding, voluntary guidelines and recommendations.[334] Moreover, this is indicative of the fact that the international community intends not to formally amend the international space law contained in existing treaty law in spite of being explicitly provided for, and considers non-binding instruments sufficient for the purposes to be achieved.[335] In any event, it is doubtful as to whether in the current climate in UNCOPUOS any political will for a decision to amend any of the outer space treaties can be found, or for that matter agreeing as to what a majority for an automatic amendment will be; and this is even before the substance of the amendments are considered. Amendment of the outer space treaties is not viable.

Another suggested solution was to create an international forum to adjudicate in outer space affairs: Currently the choice of structures available for dispute settlement in the area of outer space is determined by the legal character of those who are parties to the dispute, with states and state entities in a far more privileged position than IGOs, private entities or individuals.[336] First, the ICJ as the dispute settlement system of the ITU, WTO or the (until now not established) Claims Commission under the 1972 Liability Convention, is open only for states which have accepted its jurisdiction. Secondly, real or potential investment agreements concluded between states and space communication operators are of a different

[333] Lyall and Larsen, *supra* note 36, at 186-188.
[334] Hobe, *supra* note 6, at 209.
[335] Hobe, *Ibid.,* at 41-43.
[336] Hofmann, 'Introduction: Dispute Settlement in the Area of Space Communication', in M. Hofmann (ed.). *Dispute Settlement in the Area of Space Communication* (2015), 7-20, at 8-9.

legal character. Disputes arising from such agreements may take place under a variety of *ad hoc* or institutional arbitration rules frameworks, for example the International Centre for Settlement of Investment Disputes ('ICSID') where one of the parties is a state or a state entity, and the Permanent Court of Arbitration ('PCA') offers Optional Rules for Arbitration on Disputes Relating to Space Activities.

This pitch was grounded on the belief that the numerous proposals to deal with the technological advances in outer space will be insufficient as legal disputes are inevitable no matter which specific rules are adopted, plus the increasing numbers of participants in outer space can only lead to a rise in legal disputes.[337] Thus, the international community should establish an international forum to adjudicate those disputes, and which should be unbiased and with the power to enforce its decisions. Such a multilateral approach to outer space exploration could also foster cooperation, preventing competition and the militarization of outer space.[338] An international court could be the basis of that approach going forward, as a court-based system created out of a multilateral treaty encourages states and their nationals to resolve their disagreements peaceably. Should disagreements be resolved and enforced on earth, then states will not have a strong incentive to use force to protect their interests beyond Earth's atmosphere. A cooperative framework will also have the potential to resolve disputes between developed and developing states over the use of natural resources in outer space. An international outer space court represents a meaningful change to the international legal regime, but to be beneficial it needs international legitimacy as an *ad hoc* tribunal will not send a clear and consistent signal to the international community that justice will be served, and it must be supported by the US as the largest spacefaring nation.

The implied suggestion is that, if you cannot make a treaty to address pressing legal questions, then create a court that can create judges' law to deal with *lacunae.* The implicit hope is that, once the decisions start coming, legislation would be considered again. Experience with international criminal tribunals, both *ad hoc* and permanent, indicate that such an international outer space court should be a

[337] Abrams, 'First Contact: Establishing Jurisdiction over Activities in Outer Space,' 42 *Ga. J. Int'l & Comp. L.* (2014), 797-824, at 800.
[338] Abrams, *Ibid.,* at 823-824.

permanent institution. Nonetheless, the main problem remains that a treaty is required to create such a court, and for that you would need multilateral cooperation within UNCOPUOS, and that is sadly lacking. Moreover, international tribunals are magnets for international diplomacy, for example the International Criminal Court in The Hague is governed via an Assembly of States Parties which is one of the most intensely active forums of multilateralism.[339] It is hard to see how such a court would lead to the fostering of cooperation, where UNCOPUOS has failed. In any event, the USA, Russia, and China have consistently refused to join such international tribunals. An international court whose jurisdiction covers outer space represents an ambitious but optimal choice, and perhaps states should rather adopt new substantive rules governing issues on property rights and liability in outer space.[340] This should only be a last, and somewhat desperate, option.

The German delegation, aware of its historic role in the change of the agenda structures of STSC and LSC in 1999, again took the initiative to initiate the discussion on the LSC's future, merging various lines of discussion on the session period and agenda setting, which had emerged during the past years.[341] Discussion on this commendable German proposal for UNCOPUOS reorganisation was initiated during the 2013 LSC, and further elaborated by means of consultations on the margins of the 2013 UNCOPUOS and the 2014 STSC. At the 2013 session of the LSC a German delegation non-paper was informally discussed. The German delegation continued informal consultations in particular among the member states of the ESA, but also regional groups in LSC such as Group of Latin American and Caribbean Countries in the United Nations ('GRULAC') and the Western European and Others Group ('WEOG'), which together became the main supporters of the initiative. The German delegation presented a 'Proposal for a renewal of the agenda structure and organization of work of the Legal Subcommittee' for discussion at the 2014 session of the LSC, trying to be particularly responsive to inputs and wishes from other countries as demonstrated by two revisions the working paper underwent

[339] See Appendix A: Participation Observation; Article 112 of the Rome Statute of the International Criminal Court.
[340] Abrams, *supra* note 337, at 823.
[341] Schrogl, *supra* note 248, at 102; A/AC.105/C.2/L.293/Rev.1 of 26 March 2014 Working paper submitted by Germany: Proposal for a Renewal of the Structure of the Agenda and the Organization of Work of the Legal Sub-Committee, at paras 1-2.

during the session. The resulting conference room paper was then, after the session, published again as a committee paper.[342] Upon receiving comments and questions from delegations, a presentation was given for the purpose of providing clarifications and explanations. An updated version with explanatory elements was utilized at the 2015 LSC. Quite correctly, the format of the LSC was seen as too static and not contributing to dynamic debate and ultimate decision making. The German proposal was twofold, namely the renewal of the structure of the agenda, and the re-organization of work of the LSC, in order to maintain and strengthen the position of the LSC as the main intergovernmental forum for the development of space law.[343]

For this the agenda should be restructured to be more flexible and dynamic and to allow for more debate. In their view the current agenda and format relies on static prepared statements with little interaction, which had caused the agenda setting to again became rather static.[344] The suggested remedy was a more flexible way of dealing with issues in preparatory groups (in earlier versions called expert groups) reporting to only two permanent working groups, one on the status and application of the five UN treaties on outer space and another on the status and application of the non-binding instruments developed in UNCOPUOS. They also noted that LSC attendance was high for the first two or three days but turned low during the following days and the second week, when in particular delegates from the capitals have returned home since they cannot or do not want to stay for the full two weeks of the session. The suggested remedy was to split the two-week session into a first week, covered by the deliberations in the preparatory groups and the second week covered by the governmental representatives. Together, the separation of the two weeks intended to keep interest and representation at least compact in the second week and the deliberations opened up for new impulses in the first week. The idea for the preparatory groups was derived from the positive experience with the working method of the LTS item in the STSC. They suggested that the LSC should be divided into smaller working groups which would allow for more robust debate

[342] A/AC.105/C.2/L.293/Rev.2 of 16 April 2014 Working paper submitted by Germany: Proposal for a Renewal of the Structure of the Agenda and the Organization of Work of the Legal Sub-Committee.
[343] A/AC.105/C.2/L.293/Rev.2 of 16 April 2014, *Ibid.*, at para 2.
[344] Schrogl, *supra* note 248, at 102.

and exchange of views, allowing increased networking and interaction.[345] Crucially, the new proposal did not cut the time of the LSC, but time allocated would be better utilized. A need was identified to discuss more thoroughly the status and application of non-binding instruments and cooperation mechanisms.[346] Envisaged was a standing agenda item on non-binding instruments, with the establishment of an associated permanent working group. A number of current agenda items could be incorporated under these two agenda items, which would provide an opportunity to integrate less productive agenda items. In order to intensify and concentrate the exchange of views between governmental representatives, the German delegation further proposed that the first week would be dedicated to preparatory groups and, on the Friday of that week, the by-now traditional symposium organized by the IISL and the European Centre for Space Law ('ECSL'), whilst the second week would be dedicated to deliberations of the working groups and the plenary.[347]

Regarding organizational structure, the German proposal was that the work conducted in the preparatory groups would constitute an integral part of the sessions of the LSC. Participants in the preparatory groups would be members of delegations. IGOs and NGOs with Permanent Observer status to the Committee could also participate as observers.[348] The working groups would be the place for the preparation of decision-making in the plenary, based on an exchange of views among member states. Deliberations in the working groups could also serve to initiate the drafting of new legal texts. The reports of the working groups would reflect conclusions and recommendations. Significantly, participants in the working groups would be members of delegations or Permanent Observers.[349] The plenary would remain the decision-making body of the LSC. The general exchange of views would be scheduled for two full days on both Mondays of the session, thus allowing it the equivalent time as under the current agenda structure.

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[345] A/AC.105/C.2/L.293/Rev.2 of 16 April 2014, *supra* note 342, at para 2.
[346] A/AC.105/C.2/L.293/Rev.2 of 16 April 2014, *Ibid.,* at paras 4-6.
[347] A/AC.105/C.2/L.293/Rev.2 of 16 April 2014, *Ibid*. at paras 12 and 13.
[348] A/AC.105/C.2/L.293/Rev.2 of 16 April 2014, *Ibid.,* at para 26.
[349] Appendix A: Participation Observation; A/AC.105/C.2/L.293/Rev.2 of 16 April 2014, *Ibid.,* at paras 29-30.

The advantages of their proposed model, which was to be decided in 2015 and to be implemented from 2016, were to:[350] Be more flexible way of taking up issues of concern to delegations; lead to more substantive debate based on preparations taking place as an integral part of the session, plus more intensified debate in the deliberations of member states as a result of a more concentrated meeting period; provide a better insight into the issues for smaller delegations with fewer resources as they would benefit from the work of the preparatory groups, which they could also follow, lead to a stronger reflection of scientific and technical aspects integrated into the preparations; and a more thorough and adapted use of meeting time without reducing the session period. The German delegation felt that in particular smaller, less numerous delegations would benefit from such a scheme, since they do not have the resources to investigate the issues themselves but could benefit from the results of the preparatory groups.[351] Also, scientific-technical aspects could be reflected more broadly via the open composition and work of the preparatory groups, which would finally close the regrettable gap between the two Subcommittees. With the concentration of the work of the government representatives in the second week, an intensified debate and a stronger presence, more in-depth deliberations could be expected. The rising costs of diplomacy was a driver for many member states to insist on change. The gap between the STSC and the LSC has been evident for long and it was only closed in the 1980s and 1990s with the UNGA Resolutions on Remote Sensing and on NPS where the two Subcommittees had worked hand in hand. Today, nothing links the STSC with the LSC, and the introduction of scientific-legal preparatory groups would substantiate the work of the LSC and remedy the observed LSC isolation.

The German delegation canvassed strongly for support on this proposal and held bilateral consultative meetings at the 54LSC.[352] The fact that the German delegation was led at bilateral meetings by the then (German) Chair of the LSC, Kai-Uwe Schrogl, was interpreted by delegations as an indication of the seriousness of this proposal. This proposal was not discussed in any detail at the 58th session of the

[350] A/AC.105/C.2/L.293/Rev.2 of 16 April 2014, *Ibid.,* at para 35.
[351] Schrogl, *supra* note 248, at 102-103.
[352] On the basis of A/AC.105/C.2/L.293/Rev.2, *supra* note 342; See Appendix A: Participation Observation.

UNCOPUOS, and the only LSC organizational matter aired was the endorsement of the agreement of the 54th LSC to discontinue the use of unedited transcripts and to use digital recordings on a permanent basis.[353]

The reorganization of the UNCOPUOS working method remains one of the most sensitive issues not just at the LSC but also the main UNCOPUOS meetings.[354] On the one hand, the developed countries alliance(s) are pushing for the more efficient utilization of the time and money allocated to LSC meetings. On the other hand, the developing and emerging spacefaring nations fear that such a reorganization will not only lead to a loss in particular of capacitating opportunities but is a devious plan by the developed world to keep the developing world from benefiting from outer space applications. Such views are strengthened by the developed world's stated opinion that some of the LSC time and money should rather be allocated to the STSC and the main UNCOPUOS meeting. In particular there were concerns that the restructuring of the programme into working groups would disadvantage delegations from developing countries as they do not have the capacity to send experts to participate in these various working groups, whilst developed countries would have the resources to allocate high level experts in various fields. This sensitivity can be deduced from the IBA report on the 54th LSC which did not even mention the important debates on reorganization.[355] The merit of the German proposal is glaringly obvious and should be supported wholeheartedly. Nonetheless, the German Proposal was not implemented either for the 55th LSC in April 2016.[356] As a result, the same procedures with almost the same topics (except for small satellites, traffic management and Unispace50) were followed. This is sadly, not surprising, nor is the fact that there has been no detailed follow-up on the German Proposal in the LSC sessions since.[357]

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[353] A/70/20 Report of the Committee on the Peaceful Uses of Outer Space Fifty-Eighth Session (10-19 June 2015), at para 355; Arguably this was caused due to the meeting being hijacked by the intense political speeches regarding the application of Israel for membership, not a demonstration of multilateralism at its best, see Appendix A: Participation Observation.
[354] See Appendix A: Participation Observation.
[355] Videlier-Gutman, *supra* note 217, at 14-16; see Annexure A: Participation Observation.
[356] Email correspondence with Mr Sergiy Negoda (then Legal Liaison Officer, Committee Policy and Legal Affairs Section, UNOOSA) on 4 April 2016 and 12 June 2020.
[357] See for example A/AC.105/C.2/L.314/Add.8 Draft Report 60th LSC.

Presumably though the German proposal did lead to the new Item *general exchange of views on potential legal models for activities in the exploration , exploitation and utilization of space resources*, which is most helpful,[358]

1.12 Conclusion to Chapter 1

40 Years is a considerable period of non-treaty production, in particular after the production of five major treaties in merely 12 years. The answer to the question posed at the start of this chapter is thus simple: Should we consider success in the old-fashioned way namely hard-law production, then space law is in desperate straits.

[358] A.1AC. I 05/C.2/L.319 Annotated Provisional Agenda LSC 61; note two other relevant Items dealing with space traffic management, and small satellite activities; Appendix A: Participant Observation.

Chapter 2: The Space Assets Protocol of UNIDROIT

2.1 Introduction

Space activities require major financing. The commercial space sector includes primarily those satellite operators that provide space-based services such as satellite communications services, remote sensing and earth observation, and satellite navigation services.[359] This is achieved via launch service providers, satellite manufacturers, financiers, insurance brokers and underwriters. Considerable future growth is expected in emerging markets with increasing demand in transponders and bandwidth.[360] Space equipment is financed by private banks, investment companies, and insurance companies. Increased privatization and commercialization create higher financial risks as investment risk is no longer being assumed by governments.[361] Loans to finance space ventures were traditionally secured not on space assets but on more easily accessible, immobile, and marketable terrestrial collateral.[362] Unfortunately, mobile equipment such as satellites are highly movable by its very nature, and it operate outside sovereign territory.[363] The space industry operates internationally, with the borrower's business and assets likely to be located in more than one jurisdiction and with the launched satellite far away in orbit.[364] The financing and leasing of satellites were for many years frustrated by the fact that such items of high-value equipment regularly cross international borders, thereby making the rights and interests of

[359] Sundahl, *supra* note 5, at 3 FN 5.
[360] The construction and launch of a single satellite can run into hundreds of millions of US $, and a single transponder on a satellite from US $ 5 to 20 million, whilst a fully operational reusable launch vehicle with modern technology may cost USD 10 billion: M. Sundahl, 'Financing Space Ventures', in F. von der Dunk and F. Tronchetti (eds.), *Handbook of Space Law* (2015), 814-872, at 874-875; Sundahl, *Ibid.*, at 3-4; Zheng, 'Space Asset under the Space Protocol of the Cape Town Convention', *NYU* (2014), at 1. available at https://www.nyulawglobal.org/globalex/Space_Asset_Protocol_Cape_Town_Convention.html (last visited 18 October 2019).
[361] For example the financial arrangements for the contemplated mission of Mars One to establish a permanent human settlement on Mars: Lyall and Larsen, *supra* note 36, at 220; Note it appears as if the Geneva stock exchange has suspended trading it its shares, available at https://www.mars-one.com/about-mars-one/current-mission-status (last visited 17 August 2019).
[362] Sundahl, *supra* note 5, at 7-8.
[363] Zheng, *supra* note 360, at 1.
[364] Weber-Steinhaus and Chearbhaill, 'Security Rights over Satellites: An Overview of the Proposed Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to space Assets', in L. Smith and I. Baumann (eds.), *Contracting for Space: An Overview of Contract Practice in the European Space Sector* (2011), 221-232, at 221.

lenders and lessors inherently unstable.[365] Not all legal frameworks provide adequate protection to creditors in the event of defaults by debtors.[366] Even if security rights created under the law of a particular jurisdiction is recognized, their priority claim may not be guaranteed.

The financing of space assets takes three principal forms.[367] Firstly, a *loan* secured by a security interest in the object. Secondly, a *sale under an agreement* (known as a title reservation, or conditional sale agreement) in which the seller reserves ownership until payment in full. Thirdly a *lease*, either a finance lease or an operating lease which may include an option to purchase. There are several types of financing transactions available.[368] *Equity finance* refers to the raising of funds by the sale of a company's assets such as stock. *'Secured lending'* where the loans are secured on the assets of the borrowers in order to provide the banks with some protection in case of default on payment. *Project finance* where the lenders rely on the revenue generated by the project for repayment of the debt obligations without recourse to the company sponsoring the project, for example lenders would look to the income generated from transponder leases and other revenue streams flowing to the satellite operator (lenders will demand a first-priority security interest in the satellite since the collateral is the lender's only protection in case of default). *On-orbit financing* where satellites and individual transponders get sold or leased to a new operator whilst on-orbit. Here a company may simply purchase or lease a transponder from the satellite operator, alternatively utilize a sale/leaseback structure in order to acquire the long-term use of an individual transponder. This involves the initial purchase of a transponder from the satellite operator by the company which then resells the transponder to the bank which in turn leases it back to the company.

At the outset of the space age, Governments funded their own space activity. When private industry, blue-chip companies with triple-A credit ratings, entered the satellite communications field, they had little difficulty in receiving loans on the

[365] Goode, *supra* note 4, at Introduction para 1; note the similar situation with aircraft/rolling stock.
[366] Goode, 'Private Commercial Law Conventions and Public and Private International Law: The Radical Approach of the Cape Town Convention 2001 and Its Protocols', *65 Int'l & Comp LQ* (2016), 523-540, at 524 ('Goode (2016)'); Zheng, *supra* note 360, at 1.
[367] Goode, *supra* note 4, at para 2.4.
[368] Sundahl, *supra* note 360, at 874-875, FN 5; Sundahl, *supra* note 5, at 3-4, FN10 at 5.

basis of their own creditworthiness and their easily accessible and marketable terrestrial collateral.[369] However, the deregulation of satellite communications opened up domestic markets to foreign satellite operators,[370] plus new entrepreneurs, such as SpaceX, entered manned and unmanned space flight. Unlike the incumbent space industry, there is no long history of creditworthiness or lots of assets on the ground, plus an additional level of risk for financiers with the assets available as collateral the company's satellites in orbit.

Space assets financing requires an efficient law of secured transactions with certain fundamental features.[371] A lender must be able to acquire a hypothecation[372] (non-possessory security interest) without burdensome formalities, to keep transactional costs low and to avoid a lender's security interest later being challenged for a lack of compliance with formalities. Clear priority rules to ensure priority over subsequent lenders. A publicly searchable registration system to clarify the priority positions of competing claimants. Prospective registration of the security interest before the loan is disbursed. A creditor must be able to unilaterally exercise remedies in the event of the debtor's default without the need to seek a court order. Litigation is expensive and deprives the creditor of funds, and is counterproductive with satellite technology rapidly becoming obsolete. A creditor must be able to exercise remedies against the debtor's assets even when the debtor is insolvent. The primary purpose of bankrupt proceedings is to protect the assets of the bankrupt party (by placing a stay on creditor actions that wishes to seize the bankrupt party's assets) and then reorganize the company, discharge the bankrupt party's debts, and distribute assets to creditors. An additional provision to ease the transactional burdens and increase the creditor's ability to reach collateral in the event of default

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[369] Such as AMERICOM (a subsidiary of RCA) and DirectTV (a joint venture of RCA and Hughes Electronics): M. Sundahl, *supra* note 5, at 5-7.

[370] Via the Fourth Protocol to the General Agreement on Trade in Services of the World Trade Organisation ('WTO') in the 1990's; See Meisner, 'Global Telecommunications Competition a Reality: United States Complies with WTO Pact', *American University International Law Review 13 no. 5* (1998): 1345-1381, at 1347-1349.

[371] Sundahl, *supra* note 5, at 8-10; note the first four are the core requirements for an efficient system; For a simpler exposition see Davies, 'The New *Lex Mercatoria*: International Interests in Mobile Equipment', *ICLQ vol 52* (2003), 151-176, at 174.

[372] Sundahl, 'The 'Cape Town Approach': A New Method of Making International Law'. *44 Colum. J, Transnat'l L.* (2006), 339-376, at 375; Sundahl, *supra* note 5, at 8-9, 31; note that a security interest is referred to in various legal systems as a charge, lien, pledge, hypothecation and chattel mortgage, and therefor to avoid confusion the generic term 'security mortgage' was chosen for the Space Protocol.

is a law permitting the creation of security interests that secure 'future advances' which will eliminate the need to enter into subsequent agreements for subsequent loans, for example if additional satellites are placed into orbit in a telecommunications satellite constellation, and the creditor's security interest automatically attaches to any proceeds realised by the debtor on the sale of the collateral to a third party.[373] Banks also need to have confidence that the collateral securing its loans will be easily marketable so that the bank can quickly dispose of the collateral and realize the proceeds needed to cover its losses.

Consequently practitioners, in order to minimize the risks posed by existing laws, frequently structure contracts so as to avoid countries with inhospitable laws. They also arrange for control codes or other information needed to gain control of a satellite to be placed in escrow in a country that will allow for the enforcement of an agreement calling for the release of this information to the creditor upon default; and assign agreements ancillary to the operation of satellites to the creditor for example transponder leases and transponder service agreements, or tracking or telemetry and control agreements. It was argued that contemporary international space law permits the application of private international law, which is of course an element of national law, to activities in space.[374] Other commentators more recently clarified that the application of private international law is not really suitable to outer space activities: One of the drafters of the Space Protocol emphasized that the *lex rei sitae* is particularly ill-suited to assets that move regularly across frontiers or in the case of satellites not on the earth at all.[375] In addition, traditional conflict of laws is unsuited to space assets often in transit prior to launch.[376] As it is,

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[373] Sundahl, *supra* note 5, at 9-14.
[374] Klučka, 'The Role of Private International Law in the Regulation of Outer Space', 39 *Int'l & Comp. L.Q.* (1990), 918-922, at 922; note written before the first draft of the Space Protocol.
[375] M. Stanford, 'The Preliminary Draft Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Space Assets', *Paper delivered in Bangkok, 16-1 Nov 2010 at event jointly organised by UNOOSA, Thailand and European Space Agency and hosted by the Geo-Informatics and Space Technology Development Agency,* copy provided by M. Stanford, Immediate Past Deputy Secretary-General UNIDROIT ('Stanford Bangkok'); M. Stanford, 'The Draft Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Space Assets on the Brink of Adoption', *Paper delivered at April 2012 Symposium In Celebration of the 50th Anniversary of the Legal Sub-Committee of the United Nations Committee on the Peaceful Uses of Outer Space*, copy provided by M. Stanford, Immediate Past Deputy Secretary-General UNIDROIT ('Stanford (2012 Symposium)'); Sundahl, *supra* note 372, at 339.
[376] Goode, *supra* note 4, at para 2.5.

different legal systems adopt differing approaches to the determination of the applicable law.

It is in this context that the need for a Space Protocol was advocated. The legal regimes of many countries do not provide clear, enforceable and protective systems for the security interests, mortgages or hypothecs over space equipment.[377] Security arrangements are pivotal in financing infrastructure projects, to enable asset-based financing and leasing of space assets with prospective international lenders being assured of their rights and priorities in the event of a debtor's insolvency.[378] The Space Protocol purpose is to facilitate financing and leasing of outer space mobile equipment.[379] This is done to reduce costs and simplify satellite financing.[380] Although this type of financing is not new, the nature of space assets, especially the fact that they are bound for orbit, creates numerous technical complexities requiring a new regime to govern such loans.[381] Unfortunately, the financing of space assets was never formally considered by UNCOPUOS, and UNIDROIT stepped in.

2.2 UNIDROIT History and Development

The birth of the League of Nations ushered in a new era in the codification of international law.[382] Starting in 1924, the League Assembly adopted a series of Resolutions which recognised the need for 'progressive codification' in order to define, improve and develop international law. UNIDROIT was formally established in 1926 as a League of Nations auxiliary organ, with the objective of harmonising and coordinating national commercial law. The mandate indicated an understanding that codification would not to be limited to restating existing law.

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[377] Marchisio, 'Space Assets Protocol and Compliance with International and Domestic Law', 55 *Proc. Int'l Inst. Space L. 185* (2012), 185-194, at 186; note this author chaired five sessions of the UNIDROIT Committee of Governmental Experts entrusted to negotiate the Protocol on Space Assets, and the Committee of the Whole of the 2012 Berlin Diplomatic Conference.

[378] Brisibe, 'Prospects for the Arbitration of Disputes in Public-Private Partnerships', in P. Sterns and L. Tennen (eds.), *Private Law, Metalaw and Public Policy in Space* (2016), 53-66, at 57.

[379] Goode, *supra* note 4, at paras 2.1 and 2.6.

[380] Larsen, 'The Space Protocol to the Cape Town Convention and the Space Law Treaties', 55 *Proc. Int'l Inst. Space L.* 195 (2012), 195-201, at 196.

[381] Porras, 'Entering into Force: Promoting Unidroit's Space Protocol Among Emerging Space Actors', in S. Kozuka, *Ius comparatum - Global Studies in Comparative Law, Implementing the Cape Town convention and the Domestic Laws on Secured Transactions'* (2017), 369-372, at 369.

[382] Available at https://www.unidroit.org/about-unidroit/ (last visited 5 May 2022); Bin Cheng, *supra* note 69, at 165.

Following the demise of the League of Nations, UNIDROIT was re-established in 1940 by treaty, the Statute of UNIDROIT. Due to the close link between the Council of the League of Nations and the Italian Government, Italy provided premises for and hosted the UNIDROIT in Rome.[383]

UNIDROIT is an independent intergovernmental organisation with a mandate to harmonise and coordinate national commercial law, thus a form of international codification and progressive development of national laws.[384] Just like the ILC it was the preparatory body for a number of conventions adopted at Diplomatic Conferences. Its purpose is to study needs and methods for modernising, harmonising and co-ordinating private and commercial law as between states and groups of states and to formulate uniform law instruments, principles and rules. Although its statutory objective is to prepare modern and harmonised uniform rules of private and commercial law, experience has demonstrated a need for occasional incursion into public international law especially in areas where hard and fast lines of demarcation are difficult to draw or where transactional law and regulatory law are intertwined.

UNIDROIT's 63 member states are drawn from all five continents and represent a variety of different legal, economic, and political systems, as well as different cultural backgrounds. The member states are divided into geographical regions: Africa, the Americas, the Asia-Pacific Region, and Europe.[385]

UNIDROIT international instruments are not just open to its member states and any state may join, thus the principle of *universality* applies. UNIDROIT's research project on Third Party Liability for Global Navigation Satellite System Services ('GNSS'), resulting from GNSS malfunctioning, is also relevant to space law.[386] Given its global nature any failure in GNSS may cause loss to persons or property, and space law provides the initial structure for assessing liability of outer space

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[383] J. Fawcett, *Cheshire North and Fawcett Private International Law* (2009), at 11.
[384] A. Boyle and C. Chinkin, *The Making of International Law* (2007), at 206.
[385] Full list available at UNIDROIT website, see *supra* note 382, each country has a dedicated 'central authority' for UNIDROIT, and in South Africa it is the DIRCO, see Appendix A: Participation Observation.
[386] Available at https://www.unidroit.org/studies/civil-liability/ (last accessed 5 May 2022); von der Dunk, *supra* note 286, at 280-281, criticized it as misguided and doomed to fail because GNSS liabilities emanate from the public international realm and not private international law.

activities. Connecting factors range from the location of the damage to the location of the ground receiver stations.[387]

The Cape Town Convention and its Protocols are actively promoted by UNIDROIT via its journal *Uniform Law Review/Revue de droit uniforme* (a bilingual (English/French) quarterly publication concentrating on uniform law in international private commercial law), events organized for the benefit of relevant academic and commercial circles, joint initiatives for example the IBA and the International Law Institute (Washington D.C.) special working group, Unidroit Legal Officers lecture on request to groups of students during study trips to Rome or in universities and research centres around the world, and Governing Council members translate and promote Unidroit instruments in their own languages.[388] Unidroit's work on the Cape Town Convention and its Protocols are also promoted via the Cape Town Academic Project, a joint undertaking between the Schools of Law of the Universities of Washington and Oxford, which facilitate the academic study and assessment of these instruments.[389] The Cape Town Academic Project facilitates annual conventions in Oxford and its *Cape Town Convention Journal* features in-depth analysis of important and complex topics.[390]

2.3 UNIDROIT Working Method

Significantly, UNIDROIT's Cape Town Convention was taken as the point of departure by the authoritative ESPI to conduct a comprehensive analysis of different legal mechanisms for the creation of hard law norms and the evaluation of their possible success, relative to the achievements of soft law instruments in the space field.[391] Of specific relevance to ESPI was that the umbrella Cape Town Convention led to a Protocol detailing matters specific to space assets and with the

[387] Smith, 'Legal Aspects of Satellite Navigation' in F. von der Dunk and F. Tronchetti (eds.), *Handbook of Space Law* (2015), 554-617, at 579-580, 583.
[388] C.D. 98(1) *Item No. 10 on the agenda: Promotion of UNIDROIT instruments*; 98th Session of the Governing Council held 8-10 May 2019.
[389] Available at http://www.ctcap.org/ or https://www.law.ox.ac.uk/research-subject-groups/cape-town-convention-academic-project (last visited 20 March 2020).
[390] Available at https://www.tandfonline.com/toc/rcap20/5/1?nav=tocList (last visited 20 March 2020).
[391] Froehlich and Pecujlic, *supra* note 327.

purpose to allow creditors to secure rights in space assets through an international registry.

Organs: The 'Institute', as UNIDROIT is referred to in its Statute, consists of a General Assembly, a President, a Governing Council, a Permanent Committee, and an Administrative Tribunal and a Secretariat.[392]

The *President* is appointed by the host country, Italy.[393] The President is responsible for convening sessions of the General Assembly, Governing Council and the Permanent Committee. They also chair the Permanent Committee which is responsible for the drafting of the agenda of the General Assembly, drafts the agenda of the Governing Council and has the casting vote, nominates the Secretary-General to the Governing Council, represents Unidroit, and ensures the operation of the Institute and the preparation of all studies.

The *General Assembly* convenes annually in Rome as the ultimate decision-making organ of UNIDROIT.[394] It annually votes the Institute's budget, approves the Work Programme every three years on the basis of a proposal by its Governing Council, and elects the Governing Council every five years. The General Assembly consists of one representative from each of the participating states. Governments are normally represented by their diplomatic representative accredited to the Italian Government, or by persons appointed by them. The UNIDROIT Secretary-General is the ex-officio secretary of the General Assembly.

UNIDROIT's *Governing Council*, consisting of one *ex officio* member, the President of the Institute, and 25 elected members, supervises all policy aspects by which the Institute's statutory objectives are to be attained and in particular the way in which the Secretariat carries out the Work Programme drawn up by the

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[392] UNIDROIT website, see *supra* note 382; Article 4 International Institute for the Unification of Private Law Statute incorporating the amendment to Article 6(1) which entered into force on 26 March 1993, available at https://www.unidroit.org/english/presentation/statute.pdf (last visited 30 May 2022) ('UNIDROIT Statute').

[393] Articles 5, 8 and 15, sub-Articles 6(2), 7(1) and 6(8) UNIDROIT Statute, *Ibid.*; UNIDROIT REGULATIONS Organisation of the Institute - Financial Administration – Staff (including amendments adopted by the General Assembly at its 76th session in connection with the review of the compensation and social security package offered to UNIDROIT staff (7 December 2017)), available at https://www.unidroit.org/wp-content/uploads/2021/05/regulations-1.pdf (last visited 30 May 2022), Regulations 1(1) and (2), 3 and 10 and (2).

[394] Articles 5 and 6, sub-Article 8(3) UNIDROIT Statute, *ibid*.

Council.[395] Its 25 members are elected by the General Assembly every five years, but in addition the General Assembly may appoint one other member from among the judges in office in the ICJ. All current UNIDROIT projects are discussed and analysed in the annual Governing Council meeting. Moreover, it debates the Annual and Management Reports, budget, promotion of UNIDROIT instruments, library, information resources and policy, proposals for work programme for the next triennial, and the Legal Co-Operation Programme. The Governing Council may invite representatives of international institutions or organisations to take part in meetings, in a consultative capacity, whenever the work of the Institute deals with subjects which concern of them.

The *Permanent Committee* consists of the President and five members appointed by the Governing Council from among its own, and they serve for five years and may be re-elected.[396] The President convenes the Permanent Committee when they consider it expedient, but at least once a year.

The *Administrative Tribunal* has jurisdiction to deal with any dispute between the Institute, and its officers or employees.[397] It can also take decisions on any contractual dispute between the Institute and third parties provided such jurisdiction has expressly been recognised in the contract giving rise to the dispute.

The *Secretariat* consists of the Secretary-General, the *de facto* administrator of UNIDROIT and appointed by the Governing Council on the nomination of the President, two Deputy Secretaries-General of different nationalities and also appointed by the Governing Council, and the officers and employees.[398] The Secretary-General and the two Deputies serve for five years.

UNIDROIT purposes are to examine ways of harmonising and coordinating the private law of states and of groups of states, and to prepare gradually for the adoption by the various states of uniform rules of private law.[399] This is accomplished by preparing drafts of laws and conventions with the object of

[395] UNIDROIT Statute, *Ibid.,* at sub-Article 6(7); The United Nations Commission on International Trade Law ('UNCITRAL') and FAO normally observe proceedings, see Appendix A: Participation Observation.
[396] UNIDROIT Statute, *Ibid.,* at Article 7.
[397] UNIDROIT Statute, *Ibid.*, at Article 7(bis).
[398] UNIDROIT Statute, *Ibid.,* at Article 8.
[399] UNIDROIT Statute, *Ibid.,* at Article 1; also UNIDROIT website, *supra* note 382.

establishing uniform internal law, preparing drafts of agreements with a view to facilitating international relations in the field of private law, undertaking studies in comparative private law, participating in projects already undertaken in any of these fields by other institutions with which it may maintain relations as necessary, organising conferences, and publishing works which the Institute considers worthy of wide circulation.

The UNIDROIT law-making process focuses on the harmonisation of the unification process of commercial law, which requires attention to technical detail to facilitate the changes to municipal law.[400] Preliminary work is undertaken by the Secretariat to determine the desirability and feasibility of a particular project, and which may include an examination of the comparative law on the issue in question. The UNIDROIT Governing Council considers the Secretariat's report and advises on the most appropriate course of action. Normally this entails convening a study group of independent experts in the particular field where the Council judges the preparation of an international instrument to be both feasible and useful. The Secretariat is responsible for determining the membership of these study groups and for ensuring that different areas of expertise are covered (legal, technical, commercial and industry-specific knowledge may be required for a specific treaty), as well as a balanced representation of different geographical regions and legal systems. The study group prepares a preliminary draft which is then brought before the Governing Council for further consideration. Should the Council approve the project, it will normally authorize the transmission of the preliminary draft to Governments with a view to convening a committee of experts made up of the representative of member Governments, appropriate IGOs and professional associations. Non-member Governments may also be invited. The committee of experts seeks to prepare the text for a Diplomatic Conference, the establishment of which must be approved by the Governing Council, and which are invariably open to all states and not just member states.

UNIDROIT is also responsible for a number of soft law instruments such as model laws, legislative guidelines and statements of general principles, as UNIDROIT

[400] Boyle and Chinking, *supra* note 384, at 206-207.

Conventions by their nature often requires detailed technical amendments to domestic law which can be time-consuming within limited Parliamentary timetables and burdensome for states. Such need for domestic law reform tends to delay the ratification process with the risk of conventions becoming out-dated before their entry into force. These model laws offer a non-binding set of legal precedents that can be adopted, modified, or rejected by states when considering domestic law reform. Interestingly, some believe that the adoption of a model law by a sufficient number of states can achieve the required legal consistency without the formalities of treaty acceptance. Statements of general principles are directed at users (contracting parties) and decision-makers (arbitrators and judges) rather than at Governments, and their status thus depends upon their accessibility to those whose work is directly affected rather than the form in which they are adopted.

The acronym UNIDROIT originates from its French version, and it is not in the UN system. Nevertheless, UNIDROIT has been cooperating with the UN since 1959, *inter alia* undertaking to collaborate and exchange information and documents relevant to matters of mutual interest, for the UNIDROIT to propose items for consideration by the organs of the UN, and for the UNIDROIT to render assistance to the UN in respect to studies relating to questions of comparative law and the unification of rules of private law.[401] In 2013 the Ministry of Foreign Affairs of the Italian Republic proposed, in terms of Rule 13(e) of the Rules of Procedure of the UN, that the UNIDROIT be granted observer status in the UNGA. By its Decision 49/426 of 9 December 1994, the UNGA had decided that the granting of observer status should in future be confined to states and to those IGOs whose activities cover matters of interest to the UNGA.[402] Observer status is granted by the UNGA on recommendation of the Sixth Committee, and at UNGA68 the UNIDROIT was admitted as an observer.

[401] Exchange of Letters Constituting an Arrangement Between the United Nations and the International Institute for the Unification of Private Law (UNIDROIT) for Cooperation and the Exchange of Information and Documentation in Matters of Mutual Interests. New York, 22 April 1959, and Rome, 16 May 1959, UNTS 1967 No 631; note that Dag Hammarskjöld signed the Initiating Note, and that the President of the Institute in the Replying Note remarked that 'these arrangements are the prosecution of an already established successful collaboration'.
[402] See Appendix A: Participation Observation.

2.4 Space Protocol Development[403]

What eventually became known as UNIDROIT's Cape Town regime originated in a 1988 proposal by the Canadian member on the Governing Council.[404] This led to a study the *International Regulation of Security Interests in Mobile Equipment* by the University of Saskatchewan, as a result of which the UNIDROIT Governing Council set up a Restricted Exploratory Working Group in 1992 to ascertain the need for and feasibility of uniform rules governing security interests in cross-border transactions in mobile equipment. Their Report led to a Study Group, which in turn created a Drafting Committee which met and completed the first draft. In 1996 a Registration Working Group was established to examine essential features of modern electronic registration, liability for errors, and to make recommendations.

In 1996-1997 the work bifurcated between a general convention and equipment specific protocols, but there is some dispute as to precisely how that came about. According to the immediate past Deputy Secretary-General of UNIDROIT, one of the driving forces behind the Cape Town System, it was originally intended that the Cape Town Convention would apply to as wide a variety of assets likely to be moving across or beyond borders in the ordinary course of business as possible.[405] At the third session of the UNIDROIT study group for the preparation of uniform rules on international interests in mobile equipment, held in Rome 15-21 January 1997, it became clear that considerably more time would be needed to develop the rules specific to the classes of equipment other than aircraft, air frames and helicopters, as the aviation community was already reasonably clear as to the rules specific to aircraft objects. As a result, it was decided to establish a dual structure for the future international regime comprising, on the one hand a convention to

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[403] For the Cape Town Convention and Aircraft Protocol see R. Goode, *Convention on International Interests in Mobile Equipment and Protocol Thereto on Matters Specific to Aircraft Equipment Official Commentary* (2nd ed. 2008) ('Goode (Aircraft)'); Boyle and Chinking, *supra* note 384, at 74-75, 206; Sundahl, *supra* note 5, at 25. For Cape Town Convention and Rail Protocol see: R. Goode, *Convention on International Interests in Mobile Equipment and Protocol Thereto on Matters Specific to Railway Rolling Stock Official Commentary* (2007) ('Goode (Rail)').

[404] Goode, *supra* note 4, at para 1.1 Introduction.

[405] Stanford, 'The Availability of a New Form of Financing for Commercial Space Activities: the Extension of the Cape Town Convention to Space Assets', *Cape Town Convention Journal* (Sept 2012), 109-123, at 109-110 ('Stanford (Journal 2012)'); Stanford, 'The Way to the Successful Completion of the Negotiations THE UNIDROIT SPACE PROTOCOL', *Symposium organised in Vienna on 8 April 2013 by the International Institute of Space Law and the European Centre for Space Law*, at 1 ('Stanford (2013 Symposium), copy provided by the author.

carry the general rules applicable to all those classes of equipment covered, and on the other hand equipment-specific protocols to carry the special additional rules that would be needed to adapt these general rules to the specific pattern of financing for each such class of equipment. The rationale was that the technical complexities of preparing a new international regime governing the taking of security in space assets required first and foremost the participation of parties familiar with the day-to-day nature and objectives of such transactions if such a regime were to respond to market needs. Contrastingly, it is advanced that in the beginning of this process the Aircraft Working Group ('AWG') and the International Air Transport Association ('IATA') worked with the representatives of space, railway, air and other industries in an attempt to craft a single convention that would serve the needs of all these industries.[406] This first phase of the drafting process continued for eight years until, in 1996, the process stalled due to the difficulty of creating a single set of rules that would meet the different needs of the various types of collateral involved and conform to the customary practices of the different industries. It was at this juncture that the creation of the Cape Town Convention took its most interesting turn, and frustrated by the delay in the drafting process the AWG asked for IATA's assistance in modifying the process to allow the aircraft industry to move forward independently. In response to Boeing's request the General Counsel of IATA proposed as a solution to the stalled negotiations that each industry proceed independently with the drafting of an industry-specific protocol that would supplement a base convention. The UNIDROIT Study Group adopted this proposal.

Whoever was responsible for the bifurcation, the text of the preliminary draft convention was presented to the Governing Council of the UNIDROIT at its 77th session in 1998, and was approved as suitable for submission to a committee of governmental experts.[407] The Governing Council endorsed its own provisional decision the previous year to approve the proposal that work should proceed along the lines of a base convention applicable to all three categories of equipment (air, rail and space objects), and equipment specific protocols which would supplement and modify the base convention to meet the needs of the particular industry

[406] Sundahl, *supra* note 372, at 348-349.
[407] Goode, *supra* note 4, at para 1.2. and Part 1 Introduction.

concerned. As a result, UNIDROIT reorganized the drafting process so that it was to oversee the drafting of the base convention, and thereafter the work continued concurrently on the draft convention and protocols for aircraft objects, railway rolling stock and space assets. Three separate Working Groups, namely the AWG, the Rail Working Group ('RWG') and the Space Working Group ('SWG') were set up. The Aircraft Protocol draft was concluded in time for examination with the Cape Town Convention itself, and both were adopted at the 16 November 2001 Diplomatic Conference in Cape Town held under the joint auspices of UNIDROIT and the ICAO.

Work on the future Space and Rail Protocols necessarily took second place, but the RWG and SWG participated actively in negotiating the Cape Town Convention with a view to ensuring that the basic interests of the commercial space and rail industries were adequately reflected in the Cape Town Convention text.[408] Work on a Protocol for Railway Rolling Stock proceeded in parallel to the Space Protocol and led to the adoption of the text at a Diplomatic Conference held in Luxembourg in February 2007.[409] Work on the Space Protocol continued separately and led to its text being adopted later at the Berlin Diplomatic Conference held from 27 February to 9 March 2012.[410] The Space Protocol was the last of the original three protocols envisaged to be completed due to the complexity of transactions involving space assets and the special concerns of the space industry.[411]

In August 1997 UNIDROIT invited a leading space finance lawyer and partner of a New York firm and an eminent expert in commercial space financing, to form the SWG, comprising of experts from manufacturers, financiers, users/operators, and insurers of space assets.[412] The SWG worked in close collaboration with the major organizations in outer space namely UNOOSA, ESA, ECSL and the Space Law Committee of the IBA, in order to formulate a first draft Space Protocol. The SWG was assisted by a restricted informal group of experts, and met five times to generate a text that would consider the myriad of concerns raised by both

[408] Stanford, *supra* note 405 (Symposium 2013), at 2.
[409] Goode, *supra* note 4, at para 1.3.
[410] R. Goode, *Ibid*., at Part 1 para 1.9.
[411] Sundahl, *supra* note 5, at 26.
[412] Goode, *supra* note 4, at para 1.4, and Appendix IX for detailed meetings list.

Government and industry, with a final meeting held in January 2002. UNIDROIT's observer at the 52nd LSC of UNCOPUOS described the task of the SWG as preparing a first draft of a future Space Protocol, so as to give representatives of the different sectors involved in space industry a first go and indicating the sort of regimen required to make asset-based financing more accessible, before handing it over for finalisation to Governments.[413]

In September 2001, UNIDROIT's Governing Council decided that the text should be reviewed by a Steering and Revision Committee which met in February 2002.[414] A new text was submitted to the Governing Council in May 2003, which authorized the President to convene a first meeting of the UNIDROIT Committee of Governmental experts under Marchisio of Italy, and which considered the preliminary draft. This Committee met twice in Rome before deciding that there were certain issues the distinct nature of which would require intersessional work before the intergovernmental consultation process could be resumed. As a consequence, the UNIDROIT Secretariat organised two Government/Industry meetings to find solutions in 2006/7. Based on the recommendations emerging from these meetings, the UNIDROIT General Assembly in 2007 authorized the establishment of a Steering Committee under chairmanship of Marchisio to find solutions to the key outstanding issues facing the Space Protocol and which would command consensus among the Committee of Governmental Experts, once reconvened. The Steering Committee had two informal Working Groups, which met in 2008 on default remedies in relation to components, and in 2009 on public service.

This resulted in a recommendation that the Committee of Governmental Experts be reconvened and that an alternative text of the preliminary draft Space Protocol containing the solutions from the intersessional meetings be laid before the Committee. At the same time, it was also decided to convene a Sub-Committee to examine certain aspects of the future international registration system for space assets, and which met in 2009 under the chairmanship of Germany's Schmidt-Tedd.

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[413] Statement by Observer representing UNIDROIT at the 52nd Legal Sub-Committee of COPUOS 8-19 April 2013, at 9, copy provided by Stanford, Immediate Past Deputy Secretary-General UNIDROIT.
[414] Goode, *supra* note 4, at paras 1.5-1.8.

The Committee of Governmental Experts reconvened for a third session in December 2009 and adopted the alternative text that had emerged from the intercessional meetings. A further intersessional meeting was held in conjunction with meetings of the informal working groups consisting of members of international space, finance and insurance community, and chaired by Veneziano of Italy. The fourth Session of Governmental Experts decided to transmit the draft Space Protocol text to the 90th UNIDROIT Governing Council, held in Rome 9-11 May 2011, which endorsed their conclusion reached that the draft Space Protocol as improved during that session is ripe for adoption, and transmitted the draft to the Diplomatic Conference for adoption.[415]

Apart from the interim guidance provided by UNIDROIT via its Committee of Governmental Experts and its Sub-Committee, in reality there were many different meetings held by many different organisations on the draft Space Protocol before its adoption by the 2012 Berlin Diplomatic Conference. Working Group(s) external to UNIDROIT were established,[416] with the UNIDROIT General Assembly establishing at its 61st session in Rome in November 2007 a *Steering Committee* open to all having participated in the intersessional Government-industry meetings with a view to finding the most appropriate means of building consensus. In addition, *workshops and colloquia* on the draft Space Protocol were held in a number of countries. Other International/Intergovernmental Organisations were also consulted such as the advisory committee of the International Mobile Satellite Organisation ('IMSO') and the Council of the ITU. Lastly, but by far not the least, UNCOPUOS and its LSC from 2000 to 2011 contributed to focused discussions on the Space Protocol. It was a remarkable achievement of UNIDROIT to get the draft Space Protocol included on the standard LSC agenda: It thereby ensured that the premier law-making Subcommittee of the UNCOPUOS engaged with the draft annually. Moreover, its inclusion as a single-issue item ensured that it did not vanish amongst the detail of the other umbrella agenda items.

The Government of the Federal Republic of Germany in June 2011 offered to host the Space Protocol Diplomatic Conference.

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[415] Stanford, *supra* note 405 (Journal 2012), at 110.
[416] Goode, *supra* note 4, at Appendix IX.

2.5 Analysis of the UNIDROIT Working Method

The main secret of UNIDROIT's success relates to its co-operation with other IGOs.[417] UNIDROIT maintains close ties with both IGOs and NGOs, which in many cases take the form of co-operation agreements concluded at inter-Secretariat level. The three private-law formulating agencies, the Hague Conference, UNCITRAL and UNIDROIT, are known as the 'three sisters'. By reason of its expertise in the international unification of law UNIDROIT is sometimes commissioned by the other two sisters to prepare comparative law studies and/or draft conventions designed to serve as the basis for the preparation and/or finalisation of international instruments in those IGOs. Moreover, UNIDROIT's Governing Council appoints correspondents from academics and practising lawyers, and this network of correspondents is essential in allowing it to obtain difficult to find but up-to-date information on the state of the law in all its members and non-member states. In addition, it is telling that the UNIDROIT's Governing Council is much smaller compared to UNCOPUOS or any of its Subcommittees. UNIDROIT's Governing Council and its working groups also consist of experts, whilst its General Assembly consist of diplomats and politicians. UNIDROIT has a much more flexible working method as elected specialists from the Governing Council do the work/research and the drafting in working groups and only after the Governing Council has given its expert approval, the finished product is forwarded to the General Assembly for the representatives of the countries to provide political input and approval. UNIDROIT does not follow the consensus principle but has specific regulations on voting. Such a system where expert decision is obtained in the Governing Council and political approval in the General Assembly, allows for easier cooperation with other agencies (especially the consensus decision-makers UNESCO, UNCITRAL and the ITU) to speed up drafting and eventual ratification.

The Cape Town Convention provides the general rules governing the taking of security in those classes of high-value mobile equipment by their nature moving regularly across or beyond national frontiers.[418] Originally it was intended that the

[417] See Appendix B: Comparison Table: UNCOPUOS vs UNIDROIT.
[418] Stanford, *supra* note 405 (2012 Symposium).

Cape Town Convention would embody all the rules governing such classes of equipment, and only at the third session of the UNIDROIT Study Group for the Preparation of Uniform Rules on International Interests in Mobile Equipment, held in Rome 15-21 January 1997, was it decided that equipment-specific protocols will carry the special additional rules that would be needed to adapt these general rules to the specific pattern of financing for each such class of equipment. Thus, the Cape Town regime utilises a two-document approach, which in practice means the Cape Town Convention and each Protocol are to be read as one instrument and in the event of inconsistency, the relevant Protocol prevails.[419] The Cape Town Convention may only apply to a category of equipment to which a Protocol has entered into force and may only be enforced as between Contracting States to that Protocol subject to the terms of the Protocol. Thus, the general rule is that the Protocol is the controlling document. The Cape Town Convention establishes the fundamental regime, including the concept of the international registry, defines the security interests and establishes the basic rules of priority and enforcement, and the Protocols expand and modify these rules, where appropriate, to the individual categories of equipment. The Cape Town Convention provides for an 'international interest', which is a new *sui generis* interest. Once this has been created, the rights which the Cape Town Convention give to the chargee rising out of that international interest exists irrespective of the domestic law provisions in the jurisdiction in which the asset is in at the time that the interest is created. It is thus intended that the *lex situs* rule will not apply to the creation of international interests. The key feature of the Cape Town regime is the international registry, one in respect of each category or equipment, where international interests in mobile equipment may be registered (and accessible online 24 hours a day, seven days a week).

International regimes is a repeating refrain in this research project.[420] A specialized regime is defined as a self-contained, self-referential system of law or a *lex specialis* that is governed by a set of principles and rules which either excludes general international law or modifies it to accommodate the needs of the particular regime.[421] A self-contained regime's purpose is to regulate behaviour within that

[419] Articles 6 and 49 CTC; Weber-Steinhaus and Chearbhaill, *supra* note 364, at 222-225.
[420] See Introduction to Research, *supra*.
[421] Boyle and Chinking, *supra* note 384, at 23-24.

particular sector and to that end it can be developed to give effect to its relevant needs, priorities, and agendas. It was argued that the Cape Town Convention imposed a new 'legal regime' for the creation and enforcement of international interests in highly mobile, ultra-expensive goods, specifically aircraft, trains, and space assets.[422] The background hereto is that the Cape Town Convention was, at the time, the most recent achievement in a long-standing movement to create a modern and uniform international law of secured transactions. The goal of creating a uniform legal regime for the creation of security interests had for many years proved elusive due to the sharp differences in domestic laws and the implication of sensitive public policy issues. The Cape Town Convention was also described as the 'general rules' governing the taking of security in those classes of high-value mobile equipment which by their very nature involves moving regularly across or beyond national frontiers.[423] The development of the Cape Town regime did not end with the signing of the Space Protocol, but continues to evolve via the ratification committee(s),[424] Preparatory Committees for International Registries, the Commentaries on the various Protocols, discussions under the International Interests in Mobile Equipment agenda point at the annual UNIDROIT Governing Council and also by the more political annual General Assembly meetings as part of the work programme of UNIDROIT, and lastly the works of academics via the *Cape Town Convention Journal* and at the Oxford Cape Town Convention Project meetings. The regime concept can be further demonstrated by a comparison of the original three Protocols to the Cape Town Convention. The decision was taken at an early stage of the drafting of the Space Protocol, as was done with the Rail Protocol, to follow the text of the Aircraft Protocol as far as possible, and to make deviations and additions only because of factors particular to the needs and practices of the space industry.[425] This forced the drafters to maintain consistency and prevented them from making what might be thought off as improvements on the text of the Aircraft Protocol. Undeniably there is a strikingly similarity in the

[422] Sundahl, *supra* note 372, at 342-343; author's emphasis and note article written in 2006 before completion of Rail and Space Protocols.
[423] Stanford, *supra* note 405 (Journal 2012), at 109.
[424] See Appendix A: Participation Observation.
[425] Goode, *supra* note 4, at para 3.10 for detailed discussion.

structure of the three Protocols, which makes comparison easy.[426] The Space Protocol is closely related to its sister Aviation and Rail Protocols, yet the financing of space assets differs substantially from aircraft financing due to the different technology.[427]

2.6 Status and Reception of UNIDROIT Space Protocol

To state that the Space Protocol was not well received, is an understatement, as to date not a single state has ratified this instrument. This is ironic as between 2002 and 2008 the space industry was in favour of the Space Protocol, and actively participated in the drafting process via the SWG,[428] but from September 2008 it adopted a different position mainly due to the then unsolved public service clause. Several letters were sent to UNIDROIT opposing the Space Protocol, initiated by amongst others Intelsat, *Société Europeenne des Satellites* ('SES'), and the European Telecommunications Satellite Organization ('EUTELSAT'). On 3 November 2009, the Satellite Industry Association ('SIA') expressed its concerns about developing a new international framework for space financing.

These warnings resurfaced at the outset of the Berlin Diplomatic Conference.[429] A general concern was raised that existing models of space finance are sufficient and the Space Protocol 'adds an unnecessary supra-national layer of law' to the financing of space assets. More specific concerns raised by industry groups in the course of the drafting process were the vagueness of the definition of space assets, the ability of parties with a security interest in a component to prevent the enforcement of a security interest against the principal asset, the stay on remedies against space assets used for public services, the priority of insurers' salvage rights in respect of secured lenders, the criteria for identification of space assets for registration, the assignment of debtors rights, and the need for existing owners of

[426] See Appendix C: Comparison Table Cape Town Convention Protocols, analysis made possible via the comparison document provided by Lena Peters of UNIDROIT 9 July 2014.
[427] Larsen, 'Berlin Space Protocol: Update', *ZLW 64* (Jg. 2/2015), 361-395, at 365.
[428] Mihai Tãiatu, *supra* note 342, at 516-517; Marchisio, *supra* note 196, at 186; Appendix C: Comparison Table Cape Town Convention Protocols.
[429] Sundahl, *supra* note 5, at 27; Statement of the Satellite Industry Association on the Revised Preliminary Draft Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Space Assets (18 October 2010), available at www.esoa.net/upload/files/news/unidroot/20101018sia.pd (last visited 16 August 2014).

satellites to register their interests. At least four states insisted that the text was not yet ripe for a Diplomatic Conference, however the majority delegations were convinced that the draft Space Protocol would benefit developing and emerging markets, assist smaller operators and start-up companies, and broaden access to the commercial space market.[430]

During the Berlin Diplomatic Conference the SES, SIA, the Space Industry Association of Australia, and the Cable and Satellite Broadcasting Association of Asia, sent an open letter to the UNIDROIT Deputy Secretary-General in which they opposed the Space Protocol, asking the delegates to defer any consideration of the Space Protocol. This letter from global satellite industry was also signed by most of the world's satellite manufacturers, launch providers, satellite insurance brokers and underwriters, a number of banks involved in the satellite sector, and the major satellite and space-related associations. The hosting country Germany held meetings with industry as a result.

The first draft of the Space Protocol was prepared by a representative cross-section of the commercial space, financial, and insurance communities which then also participated in the intergovernmental consultation process.[431] Thereafter Governments, UNCOPUOS and UNOOSA brought their own expertise to the table. UNIDROIT considered the views of industry with such great importance that it had arranged two colloquia in Paris 2003 and Malaysia 2004, specifically for Governments and industry to compare notes on the preliminary draft Space Protocol.[432] UNIDROIT insisted that industry concerns were considered in the course of finalizing the text with many issues resolved in the final draft,[433] for example the priority of insurer's salvage rights in respect of competing secured lenders was left to existing domestic law via a clear statement in the Space Protocol that salvage interests would not be affected by the Cape Town Convention, the need for existing owners of satellites to register their interests was resolved by exempting pre-existing interests from the operation of the Cape Town Convention, and the stay on remedies against space assets used for public services was addressed with

[430] Stanford, *supra* note 405 (Journal 2012), at 109; See Appendix A: Participation Observation.
[431] Stanford, *supra* note 413 (Statement).
[432] Stanford, *supra* note 279 (Symposium 2013), at 4.
[433] Sundahl, *supra* note 5, at 28.

multiple limitations in order to strike the proper balance between the public interest and the needs of creditors. In spite of this, the US delegation in particular, recommended that in light of the concerns expressed the Space Protocol not be adopted until further study of the economic benefits was undertaken.[434]

These industry objections caused the Final Clauses Committee to struggle with the entry-into-force requirements, and a pressure group suggested 20 ratifications to be set.[435] This was successfully opposed, with reference to the Aircraft Protocol that only required eight instruments of ratification and the Rail Protocol only four for entry-into-force. Moreover, a number ranging from five to ten instruments of ratification was common practice for the entry-into-force of a private law instrument.[436] The compromise reached was ten instruments of ratification, on the basis that '… this number took adequate account of the different ratification processes of States'.

Post the Berlin Diplomatic Conference the space industry continued to vigorously oppose the Space Protocol. Established space powers and some major actors in their commercial sectors continued to caution that it would create more problems than it would solve,[437] and that existing models and practice of space assets finance are sufficient so it will add an unnecessary supra-national layer of national law to the financing industry.[438] The satellite industry concentrated their ire on the ITU Council which from 2012 continued to analyse the role of the Supervisory Authority, the participation of the ITU within the Space Protocol, and the impact that the acceptance or the refusal of the ITU would cause.[439] The ITU's envisaged

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[434]See Appendix A: Participation Observation; also Sundahl, *supra* note 5, at 28 and the documents referenced in FN 90.

[435] Report on the Diplomatic Conference for the Adoption of the Draft Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Space Assets, Berlin, 27 February / 9 March 2012, at para 288 ('DCME-SP-Report'): … strong reservations had been voiced in respect of the draft Protocol, in particular from parts of the space industry sector'. It was felt that the entry into force of the Protocol should be based upon a "critical mass" of Contracting States that would provide sufficient traffic for the operation of the future International Registry. The time that would be required to build up such broad support among stakeholders would allow the commercial space sector to make the necessary arrangements in order to take account of the effects of the future Protocol…'

[436] DCME-SP-Report, *Ibid*., at paras 289, 290.

[437] Porras, *supra* note 381, at 369.

[438] Zheng, *supra* note 360, at 8; Ram Jakhu and Pelton, *supra* note 274, at 131.

[439] ITU-R Space Services, Supervisory Authority of the future international registration system for Space Assets, available at https://www.itu.int/en/ITU-R/space/Pages/spaceAssets.asp (last visited 19 April 2020); Mihai Tãiatu, *supra* note 428, at 508-509, 523-524.

role was limited to establishing the International Registry, appointing the Registrar and overseeing the latter's activities, approving and amending the Space Registry regulations, and setting registration fees and the level of insurance required for the Registrar. This reached a peak at the ITU Plenipotentiary Conference in Busan ('PP-14'), where the main space-faring countries opposed the ITU being appointed as Supervisory Authority. At PP-14 bilateral meetings the same letter from global satellite industry as utilized during the Berlin Diplomatic Conference in 2012 resurfaced, plus delegations were informally told there is a fear that such a move will expose unutilized satellite orbitals allocated by the ITU.[440] PP-14 decided that the ITU Council should continue to monitor any further developments on the ITU's role as Supervisory Authority, and that the Secretariat continue to express interest and respond to any questions raised by the member states before the next PP. The 2016 Council found no objections in principle to such a step and passed the question for a decision by the Plenipotentiary Conference to be held in Dubai in 2018 ('PP-18').[441] Unfortunately proceedings did not go as smoothly in the 2017 ITU Council.[442] The US, supported by Australia and Canada, maintained the concerns raised by their SIA. Germany reminded all that in the ITU Council 2016 there was agreement and no objections, and that these concerns originated from the incumbents in a market where revenue is decreasing and additional competitors are not wanted. Although Venezuela, Algeria, India, Bulgaria, and the UAE supported Germany that the ITU takes on the role of the Supervisory Authority, consensus could not be reached and the ITU Legal Councillor had to remind participants that the ITU Council does not have decision-making powers and the final decision will have to be taken by PP-18. The ITU Council 2018, held prior to the PP-18, did not discuss this.[443] In late 2018 the PP-18 held in Dubai resolved the ITU not to adopt a supervisory role for registration of international space assets.[444] Resolution 210

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[440] See Appendix A: Participation Observation.
[441] Lyall and Larsen, *supra* note 36, at 396.
[442] See Appendix A: Participation Observation.
[443] Mihai Tãiatu, *supra* note 428, at 509-10; note that he provided detailed legal answers to space industry's concerns on the ITU participating for PP-2018 at 518; ITU Council 2017, Revision 1 to Doc. C17/36-E, *Report by the Secretary-General, ITU's role as a Supervisory Authority of the International Registration System for Space Assets under the Space Protocol*, 14 March 2017, available at https://www.itu.int/dms_pub/itu-s/md/17/cl/c/S17 (last visited 8 Feb 2018).
[444] Resolution 210 (Dubai 2018); Final Acts of the Plenipotentiary Conference Dubai, 2018, at 469-470; available at https://www.itu.int/pub/S-CONF-ACTF-2018 (last visited 12 June 2019).

(Dubai 2018) commenced by recognizing there are only four signatures and none of the required ten ratifications, and resolved that any further UNIDROIT invitations may be considered by a future PP. Confusingly, the Secretary-General of the ITU was also instructed to participate in the work of the Preparatory Commission and its working groups and to report to the ITU Council accordingly. Nevertheless, this item was not on the agenda of the ITU Councils from 2019.[445]

Considering its valuable expertise in managing radio frequencies and orbital slots, authority in the field of space services, and the trust of the ITU members in the mechanism developed for allowing space industry a platform, the ITU would represent the ideal solution for assuming the role of the Supervisory Authority.[446] Arguably, only with the ITU as the Supervisory Authority of the International Registry will the Space Protocol represent a successful solution regarding space asset-based financing for all of the actors involved.

In spite of the established space industry's opposition, some commentators remained hopeful. Mihai Tãiatu announced that the Cape Town Convention and its Space Protocol would provide undeniable benefits through its potential for clarity and international harmonization, as evidenced by the 5th UNIDROIT Space Preparatory Commission discussions to reinitiate the SWG to investigate if the new actors in space is one argument that would satisfy industry's concerns and create the premise for a future dialogue about ratification.[447] Sundahl emphasised the growing interest of the financial institutions for the adoption of the Space Protocol, and insisted that the weight of experience and economic theory indicates that a harmonized, transparent, and creditor-friendly law of secured transactions will facilitate the financing of space ventures.[448] Furthermore, industry's fears would dissipate in light of the fact that the drafters resolved a number of concerns raised, and the draft law promises to be an improved system that will ultimately bring greater certainty and efficiency to space transactions.[449]

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[445] ITU-R Space Services, Supervisory Authority, *supra* note 439, only provides updates on the Supervisory Authority till 2016.
[446] Mihai Tãiatu, *supra* note 428, at 526.
[447] Mihai Tãiatu, *Ibid.*, at 27, 517.
[448] Sundahl, *supra* note 5, at 27.
[449] Final Act to the Space Protocol, *supra* note 4: 'Encouraged all Contracting States and international, national and private financing institutions to assist developing Contracting States by providing them with

There is some insight as to why it stopped supporting the Space Protocol. The ESPI Report unpacked the idea behind the Space Protocol to make access to credit easier for space actors through this system, and the perception of the Space Protocol was very different depending on who is asked.[450] Established industry saw only additional administrative, financial and legal burdens, whereas academia and some governments found this a better way of financing for start-ups, and thus the development of space industry. Moreover, the change in satellite industry attitude emerged in the early part of this century when the private space business matured and became less risky, with operators discovering alternative ways to finance their ventures.[451] Space operators became less dependent on banks and specific financiers, and instead found it to their advantage to enter the capital markets directly. Their conclusion was that the capital markets presented a better source of financing, making the Space Protocol unnecessary. A counterargument would be that parties to a security agreement over space assets are not required to use the Space Protocol, as they can choose whether to register their interests in terms of the Space Protocol or to leave the security agreement subject to relevant national law. Thus, it remains hard to deny that the existing space industry prefers the *status quo* in order to protect their established positions.

The Space Protocol, as a multilateral treaty, appears to be dead in the water. Arguably, this is truly unfortunate and regrettable in light of the 2011 Space Report that 'A stable business environment underpinned by clearly codified legal guidelines and regulatory transparency is essential for the successful development of commercial space products, services and spin-offs.'[452] What Brisibe emphasised

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reasonable discounts or rebates on exposure rates or similar charges levied by such financing institutions'. The other Resolutions to the Final Act: Establishment of the Preparatory Commission which will have the task of setting up the future International Registry for Space Assets; invited the Governing Bodies of the ITU to consider becoming Supervisory Authority (because of interest expressed by the Secretary-General of the ITU); invited the future Supervisory Authority to ensure that any search of the future Registry relating to physically linked assets reveal all international interests registered against such assets, plus any rights assignments, and acquisitions by subrogation recorded as part of the registrations of those assets; and invited Sir Roy Goode to prepare an Official Commentary; Stanford, *supra* note 405 (Journal 2012), at 113-114 and FN13.

[450] Pecujlic, *supra* note 292, 141-163, at 148.

[451] Lyall and Larsen, *supra* note 5, at 394.

[452] Quoted from Space Foundation, *The Space Report 2011,* at 29, available from https://www.thespacereport.org/ (last visited 20 April 2020); Stanford, *supra* note 405 (Journal 2012), at 123 FN68.

as its main benefit, namely to open up new economic opportunities in particular with a view to enhancing access to international capital markets of those emerging and developing economies most in need of such financing to develop their economic infrastructure to meet essential needs, may not be realised soon.[453]

Ironically, the success of UNIDROIT's so-called Cape Town Approach in treaty-making was demonstrated by a UNIDROIT Governing Council decision to start working on a fourth Protocol on Matters Specific to Mining, Agriculture and Constructions Equipment ('MAC') to the Cape Town Convention.[454] A successful diplomatic conference on MAC was held in Pretoria, South Africa, during November 2019, which culminated in the adoption of the MAC Protocol on 22 November 2019. Moreover, increasingly UN agencies are starting cooperative ventures with UNIDROIT, for example the FAO and IFAD on drafting a Legal Guide on Contract Farming, and the UNESCO on Stolen Cultural Property. The extension of the Cape Town Convention to the Space Protocol was described, at the time, as having the potential to be a transformative event in space law, just like the Cape Town Convention's entry into force with respect to aircraft in 2006 transformed the financing of airline fleets.[455]

There was speculation that the draft Space Protocol would indicate a tendency for countries to more likely agree to some form of internationally binding legal agreements in the case of vital security or commercial interests.[456] As the Space Protocol has not yet entered into force, this would rather support the arguments that the main space powers would prefer non-binding agreements in order to get maximum leeway in ordering their space activities.

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[453] Brisibe, *supra* note 378, at 57.
[454] See Appendix A: Participation Observation. See also GA report: UNIDROIT General Assembly Report A.G. (72(9), December 2013, at paras 24-27 available at https://www.unidroit.org/89-news-and-events/2772-the-mac-protocol-is-adopted (last visited 27 December 2019); note original was received by Note Verbale GA/958, see Appendix A: Participation Observation.
[455] M. Sundahl, *supra* note 5, at 1.
[456] Hobe, *supra* note 290, at 877-878.

2.7 Relationship of the Space Protocol with Space Law

The difference in the subject matter of the Space Protocol versus the existing space treaties appears to result in an absence of intersection but also a lack of conflict.[457] The first major difference is that earlier international space law arguably applies to commercial space activity in certain respects, but the rights and obligations apply only to states which have the duty to supervise the commercial space activities of its nationals. The duty of states to return to the launching state errant spacecraft that have crashed in their territory extends to the return of privately-owned spacecraft, but a private company has no standing under international law to demand the return of its errant spacecraft. In contrast, a bank that has an international interest in the form of a security interest in a satellite has a right to exercise remedies under the Space Protocol, because a state party to the Space Protocol is required to enforce the bank's right to exercise these remedies. Secondly, there are difference in the nature of concerns motivating their creation with the Space Protocol addressing issues arising from private transactions (needs of private financiers, such as the priority of secured parties, title to purchased assets, and remedies upon default) rather than governmental interests (such as sovereignty claims and militarization).

Nevertheless, some intersection does arise and must be kept in mind by practitioners and courts. This need for vigilance is heightened by the fact that the Cape Town Convention and Space Protocol are subordinated to the terms of the existing space treaties. Thus, the practitioner involved in a transaction governed by the Space Protocol must understand not only the Cape Town Convention and Space Protocol, but also the broader body of space law as the new Space Protocol cuts across the existing public law treaties on outer space.[458] Article III Outer Space Treaty affirms that activities in outer space are subject to international law, and licensing decisions authorised under space law must happen for there to be an enterprise to which the mechanisms of the Cape Town Convention and Space Protocol may become associated.

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[457] Sundahl, 'The Cape Town Convention and the Law of Outer Space: Five Scenarios', *Cape Town Convention Journal vol. 3.1* (2014), 109-121, at 109-110.
[458] Lyall and Larsen, *supra* note 36, at 402-403.

Primacy of the five outer space treaties: Of critical concern to the members of the SWG during the drafting stage, was the concern that the Space Protocol would inadvertently upset the existing system of international space law.[459] In order to address these concerns, the SWG addressed the relationship of existing space law to the Cape Town Convention in two ways. First, preambular paragraph four of the Space Protocol indicates that the drafters were aware of the importance of existing space law and that the treaty should be interpreted in a manner that is consistent with existing space law. Preambular paragraphs are recitals with the primary aim to introduce the text of a treaty, political statements, matters a negotiating state was unsuccessful in getting into the body of the treaty, or a convenient repository for the remnants of causes lost during the negotiation process.[460] They are considered as non-binding.[461] However, the primary treaty interpretation rule is to give the terms of a treaty their 'ordinary meaning in their context and in the light of its object and purpose'.[462] The Preamble is part of the context of the treaty for the purposes of interpretation, including for determining the object and purpose of the treaty.[463] The drafters clarified that this Preamble reflects the primary purpose of a Protocol to the Cape Town Convention, namely to adapt the Convention to the particular requirements of the industry sector affected while otherwise leaving it unchanged, which would leave the UN outer space treaties and ITU instruments unaffected.[464] Secondly, Article XXXV of the Space Protocol, binding on any party to the Space Protocol, establishes the primacy of the five UN outer space treaties and ITU instruments over the Cape Town Convention.[465] Goode considered this Article as

[459] Sundahl, *supra* note 5, at 131-132.
[460] A. Aust., *Modern Treaty Law and Practice* (3rd ed. 2013), at 336-337.
[461] Sundahl, *supra* note 5, at 132.
[462] Article 31(1) VCLT; Only when the ordinary meaning of the term is ambiguous, may the VCLT text-centred approach be abandoned and recourse taken to Article 32 VCLT supplementary means of interpretation such as the *travaux préparatoires* (e.g. UNIDROIT working Group documents): see Aust, *supra* note 460, at 187-195; Sundahl, *supra* note 5, at 118; Dörr and Schmalenbach, *supra* note 237, at Article 31 paras 38 and 39.
[463] The South African Foreign Ministry utilises preambular paragraphs in order to interpret a treaty, see Appendix A: Participation Observation; Article 31(2) VCLT; Aust, *Ibid.*, at 337; Dörr and Schmalenbach, *supra* note117, at para 50 Article 31.
[464] Goode, *supra* note 4, at para 5.1.
[465] Sundahl, *supra* note 5, at 132; note at 119 the statement this Article suborn CTC to space treaties.

so self-explanatory that he simply advised practitioners on the whereabouts of the outer space and ITU international instruments.[466]

In spite of the sterling preparatory work done by the SWG, the primacy of existing space law over the Cape Town Convention and its Space Protocol has to be criticized as perhaps not such a forgone conclusion as predicted. Firstly, a potential limitation on primacy is provided by Article XXXV Cape Town Convention itself in that it does not mention the Space Protocol explicitly, leaving the door open to the argument that the Space Protocol is not bound by the outer space treaties and ITU instruments.[467] The Cape Town Convention and the Space Protocol are not independent international instruments and can only function when read together as evidenced by Article XXXV Cape Town Convention 'The Convention as applied to space assets …'. Secondly, and perhaps of more concern, is the fact that Article XXXV of the Cape Town Convention fails to mention other sources of space law, leaving at least the potential for customary international law or treaties concluded by states outside the auspices of the UN or the ITU to be trumped by the Cape Town Convention and the Space Protocol.

In addition to the fundamental rules of treaty interpretation treaties normally contain general clauses specifically stating their purposes which can be utilised in determining the object and purposes of a treaty.[468] Should any allegations on primacy occur, the Cape Town Convention provides its own rules of interpretation and which are to be considered alongside those of the VCLT.[469] In the first place, Article 5(1) Cape Town Convention determines when interpreting the Convention 'regard is to be had to its purposes as set forth in the preamble, to its international character and to the need to promote uniformity and predictability in its application.' Possibly Article 5(1) is an instruction to national courts to avoid national concepts in interpreting the Cape Town Convention.[470] Secondly, Article 5(2) Cape Town Convention instructs that questions on matters governed by the Cape Town Convention and not expressly settled are to be addressed 'in conformity

[466] Goode, *supra* note 4, at para 5.126.
[467] Sundahl, *supra* note 5, at 132-133.
[468] Dörr and Schmalenbach, *supra* note 117, at para 56 Article 31.
[469] Sundahl, *supra* note 5, at 118.
[470] Goode, *supra* note 4, at paras 4.61-63.

with the general principles on which [the Convention] is based, or in the absence of such principles, in conformity with the applicable law'. Article 5(3) of the Cape Town Convention identifies these as the 'domestic rules of the law applicable by virtue of the rules of private international law of the forum state'. The general principles on which the Cape Town Convention are based are all stated in the Preamble, namely those that underlie asset-based financing and leasing, and are the 'first and primary sources for gap-filling'. Sub-Articles 5(1) and (2) Cape Town Convention can be described in treaty law on the one hand as interpretation clauses for the interpretation of the treaty, and on the other hand as purpose clauses.[471] Still, both types of clause are subject to the general rules of interpretation as set out in the VCLT, for example the treaty interpreter may determine whether the purpose of the treaty has been laid down accurately and exactly what the stipulated purpose means. To the extent that sub-Articles 5(1) and (2) alter or expand the interpretation rules of the VLCT, such an alteration or expansion would supersede the VCLT rules under the doctrines of *lex posterior derogate legi priori* and *lex specialis derogate legi generali*.[472] Thus, any conflict between the Cape Town Convention and other sources of international space law may have to be resolved according to the doctrines which would almost certainly give primacy to the Cape Town Convention and Space Protocol, namely the later in time principle whereby a later treaty would trump any earlier treaty as a more recent expression of international law, and secondly supremacy to a law that addresses a specific issue over another law which handle the issue in a general manner.

Perhaps the determining factor in any argument of primacy by the Cape Town Convention and Space Protocol over the other sources of space law, would be the detailed examination of the *travaux préparatoires* of these two Treaties.[473] This supplementary means of treaty interpretation in terms of Article 32 VCLT can only be applied once the application of the general rule in Article 31 VCLT has failed, and under certain conditions, namely it must be material that can be objectively assessed as preparatory work, and which illuminates a common understanding of

[471] Dörr and Schmalenbach, *supra* note 117, at para 32 Article 31.
[472] Sundahl, *supra* note 5, at 119; note known in practice as the *lex posterior* and *lex specialis* principles, see Appendix A; Participation Observation.
[473] Dörr and Schmalenbach, *supra* note 117, at paras 2-131 and 10-20 Article 32.

the negotiating parties as to the meaning of the treaty provisions. Moreover, a no-conflicts principle was agreed between the LSC of UNCOPUOS and the SWG.[474]

Further comfort is provided in the official Space Protocol commentary.[475] Article XXXV of the Space Protocol clarifies that the Cape Town Convention and the Space Protocol, as private law instruments, do not affect the rights and obligations of states under the outer space treaties. Nothing in the Cape Town Convention or Space Protocol, relating to the rights and obligations of private parties, touches matters covered by the outer space treaties, relating to the rights and obligations of states. The Outer Space Treaty bestows on states jurisdiction over space objects, whilst the jurisdiction and choice of law provisions of the Cape Town Convention and Space Protocol are confined to disputes between private parties. The public services provisions in Article XXVII of the Space Protocol, imposing an internal limitation on the power of a state to insist on continuance of public service despite default by the debtor, do not affect the control over space objects exercisable by the state of registry under Article VIII Outer space Treaty.

2.8 UNIDROIT's Cape Town Approach: A new Method for International Law-making?

Sundahl described the so-called Cape Town Approach as demonstrating some innovative features for treaty-making.[476] In particular the unparalleled use of supplementary protocols, the relationship of those protocols with the base Cape Town Convention, the degree of private industry involvement in the drafting process, the importance of commercial expediency, the inbuilt flexibility to respond to various industries, the detailed commentaries provided shortly after the diplomatic convention, and the merging of civil and common law concepts. This can be supported, on condition that these features are considered collectively.

Unparalleled Use of Supplementary Protocols: A framework treaty or convention, a relatively recent invention, is essentially a multilateral treaty no different in its

[474] Larsen, 'Future Protocol on Security Interests in Space Assets', *67 J. Air L. & Com* (2002), 1071-1104, at 1086.
[475] Goode, *supra* note 4, at para 2.9(2).
[476] Sundahl, *supra* note 5, at 23; the Rome Statute on the International Criminal Court of 2002 is probably a better example of such, see Appendix A: Participation Observation.

legal effect from other treaties:[477] It provides a framework for later and more detailed protocols, or national legislation, which elaborate on the principles declared in the framework treaty. A protocol is a treaty in itself, which in general amends, supplements or clarifies a multilateral treaty.[478] Normally open to participation by the parties to the parent agreement, their advantage is that whilst linked to the parent agreement, it can focus on a specific aspect of that agreement in greater detail. The UN recognized six types of protocol.[479] First, a *protocol of signature* is an instrument subsidiary to a treaty, and drawn up by the same parties. It deals with ancillary matters such as the interpretation of particular Articles, Articles not inserted in the main treaty, or the regulation of technical matters. Ratification of the treaty will normally *ipso facto* involve ratification of such a protocol. Second, an *optional protocol* to a treaty is an instrument that establishes additional rights and obligations to a treaty. Usually adopted on the same day, it is of independent character and subject to independent ratification. Such protocols enable certain parties to the treaty to establish among themselves a framework of obligations which reach further than the general treaty and to which not all parties of the general treaty consent, thus creating a 'two-tier system' for example the Optional Protocol to the International Covenant on Civil and Political Rights of 1966. Third, a *protocol based on a framework treaty* is an instrument with specific substantive obligations that implements the general objectives of a previous framework or umbrella convention. Such are used particularly in the field of international environmental law, for example the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer adopted on the basis of Articles 2 and 8 of the 1985 Vienna Convention for the Protection of the Ozone Layer. Fourth, a *protocol to amend* is an instrument that contains provisions that amend one or various treaties, for example the Protocol of 1946 amending the Agreements, Conventions and Protocols on Narcotic Drugs. Fifth, a *protocol as a supplementary treaty* is an instrument which contains supplementary provisions to a treaty, for example the 1967 Protocol relating to the Status of Refugees to the 1951

[477] Aust, *supra* note 460, at 99.
[478] Treaty Handbook, *supra* note 2, at 79; own emphasis.

Convention relating to the Status of Refugees. Lastly, a *Procés-Verbal* is an instrument that contains a record of certain understandings arrived at by the contracting parties.

The Cape Town Convention, with its associated Protocols, is unusually complex.[480] UNIDROIT had found itself in a veritable *cul-de-sac* as its diligent efforts to produce new treaty law governing security interests in cross-border transactions concerning high-value mobile assets, were largely frustrated by the virtual impossibility of devising a single regime applicable to property as diverse as aircraft and engine, railway rolling stock, space property, and (at that stage) offshore oil rigs and ships.[481] However it came about, the recommended 'convention plus protocols' approach, which involved de-linking the various properties, elaborating a shorter and more general 'umbrella' Convention, and negotiating separately and securing the adoption of a series of property-specific Protocols to the Convention, was immediately accepted and endorsed and was formally put to UNIDROIT which after due consideration enthusiastically embraced the new concept.

As was seen above, the use of a secondary instrument that supplements a core treaty, generally referred to as a protocol, is a common feature of treaty law. The use of protocols is not unusual in itself, but what is revolutionary is the unprecedented manner in which the protocols are used and the relationship of these protocols with its base convention. The Protocols created in conjunction with the Cape Town Convention do not fall within any recognized category, but instead constitute a new type of protocol as it was utilized to break a political or diplomatic logjam in the negotiations. This can be distinguished from the traditional use of supplementary protocols. Firstly, in international environmental law negotiations led not merely to the adoption of a treaty text *simpliciter* but often an act of regime-creation**.** The treaties are not one-off events but dynamic instruments which evolve over time. Flexibility is built into framework treaties with technical details relegated to protocols, for example the regular meetings of the Antarctic Treaty Consultative

[480] Sundahl, *supra* note 4, at 539.
[481] Clark, 'The 2001 Cape Town Convention on International Interests in Mobile Equipment and Aircraft Equipment Protocol: Internationalising Asset-Based Financing Principles for the Acquisition of Aircraft and Engines', *69 J. Air L. & Com*. (2004), 3-19, at 4-5.

Parties under the 1959 Antarctic Treaty.[482] Secondly, the ITU's Radio Regulations contain the extended details of the global arrangements in the ITU Constitution and Convention to coordinate the international use of the frequency spectrum.[483] Thirdly, use of the protocol form as the means for subsequently adding to or expanding the terms of scope of an earlier treaty,[484] for example the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be Deemed to be Excessively Injurious or to have Indiscriminate Effects of 1980, which was drawn up as a framework convention for the separate regulation of particular weapons through individual protocols. Three such protocols are annexed to the Convention itself, and two have been adopted since: Blinding Laser Weapons and Explosive Remnants of War.

Relation of the Protocols to the Base Convention created an unprecedented type of International Convention: There is evidence of a unique relationship, as the Cape Town Convention itself has no life of its own but only enters into force when a state ratifies one of its Protocols, the Cape Town Convention expressly grants the protocols supremacy over the base convention, the Cape Town Convention will ultimately create separate legal regimes for all the asset categories, and the Cape Town Convention contains the bulk of fundamental rules common to all relevant industries, subject to industry-specific protocols.

The immediate reason for the 1996 delinking of the general and the equipment-specific provisions was to accommodate the aviation industry's desire to be able to enjoy the economic benefits of the new international regimen without having to wait for the formulation of the equipment-specific provisions relating to categories of equipment other than aircraft equipment.[485] The introduction of the convention plus protocol structure was to accommodate this short-term desire of one equipment sector whilst at the same time to safeguard the long-term benefits of uniformity for all the other categories of equipment envisioned. Nonetheless, ESPI indicated that

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[482] Redgwell, 'Multilateral Environmental Treaty-Making' in Vera Gowland-Debbas (ed.), *Multilateral Treaty-making* (2000), 89-107, at 96.
[483] von der Dunk, *supra* note 29, at 32.
[484] Satow's, *supra* note 89, at paras 32-15, 32-20, and 32-21.
[485] Stanford, 'A Broader or Narrower Band of Beneficiaries for the Proposed New International Regimen? Some Reflections on the Merits of the Convention/Protocol Structure in Facilitating the Former', *2 Unif. L. Rev.* (1999), 242-251, at 244.

the great advantage of the Cape Town approach is that the umbrella framework convention can contain general norms applicable across the board, leaving detailed regulation pertinent to a specific sector to protocols.[486] By this, a degree of communality is achieved, which might be helpful in various ways, including consensus finding, while freedom is given to take proper account of sector specific issues. This benefit of the Cape Town approach of umbrella convention and discipline-specific protocols was at the time not properly appreciated.[487]

The drafting of the Aircraft Protocol alongside the Cape Town Convention caused the aircraft industry to have greater input than other industries into the structure and substance of the base Cape Town Convention, which raised the important question as to how the legal framework could be adapted to other categories of mobile equipment? A unique and innovative relationship was then devised whereby the base Cape Town Convention on its own had no practical effect, and the Cape Town Convention takes effect with respect to each particular protocol which will modify and supplement the Cape Town Convention to make it relevant in the context of financing the specific class of equipment to which the particular protocol relates. This is a ground-breaking solution to treaty-making that facilitates the inclusion of new sectors within an umbrella of general principles, provides flexibility, and demonstrates the benefits of including a problem-solving, international commercial law approach.

The Cape Town approach of umbrella convention and discipline-specific protocols as a new way of treaty-making is reinforced by the innovative entry-into-force provisions in Article 49 Cape Town Convention, which intentionally delayed entry into force of the Cape Town Convention even though the requisite number of ratifications or acceptances or approvals or accessions (three) has been achieved until at least one protocol was brought into force.[488] In contrast the Aircraft Protocol required eight ratifications to enter into force.[489] It was considered imperative that the Cape Town Convention not be permitted to come into force in relation to a

[486] Pecujlic, *supra* note 292, at 148.
[487] Boyle and Chinking, *supra* note 384, at 75.
[488] Clark, *supra* note 481, at 6-7; note Clarke is the only author to describe this as a separate innovative feature.
[489] The Aircraft Protocol entered into force 1 March 2006; available at https://www.unidroit.org/secured-transactions (last visited 8 September 2019).

particular type of property unless and until a property-specific protocol also came into force, to assist and promote predictability and transparency which were necessary for the new asset-based financing regime. The legal relationship between the umbrella Cape Town Convention and the equipment-specific protocols is unique,[490] as the Cape Town Convention specifically provides for its Protocols to override and supersede the terms of the Cape Town Conventions itself. This was reported as a victory for the more pragmatic, asset-financing, and commercial lawyers which contented that an effective international regime for the respective properties require that the individual protocols be paramount and that the Cape Town Convention itself should make this crystal-clear to avoid any misinterpretation or misapprehension, over the more traditionalist international lawyers. Although it is common practice for one or more subsequent international legal instruments to amend an earlier treaty, for example the Warsaw Convention air transport liability system, it is unusual to state categorically that a protocol negotiated and adopted at the same time as the convention to which it is directly and legally linked must prevail as between the two. The core reason for this innovation goes back to the decision to terminate the UNIDROIT efforts to draft a single, all-encompassing treaty applicable to all classes of mobile equipment in favour of an umbrella convention and diverse property-specific protocols, as with the abandonment of the 'one-size-fits-all' approach it became necessary to ensure that the rules governing specific property (such as aircraft and engines) prevailed over any provision in the generally applicable convention.

The above can be expanded on by contrasting the aviation experience. The 1929 Warsaw Convention was adopted when long range civil aviation barely existed, with the intended purpose of 'Unification of Certain Rules for the International Carriage by Air' for the time in the future when passengers and goods would be transported worldwide.[491] After the conclusion of WWII with the introduction of ever larger planes able to fly large distances non-stop over longer routes, the 1929 Warsaw Convention needed to be brought to the present-day requirements and

[490] Clark, *supra* note 481, at 6-7.
[491] Working paper ATConf/6-WP/102 Worldwide Air Transport Conference (ATCONF) Sixth Meeting, Montreal 18-22 March 2013, at 1-2, available at https://www.icao.int/Search/pages/results.aspx?k=Warsaw%20convention (last visited 8 Sept. 2019).

beyond. Instead of concluding a new comprehensive and proactive convention, the post WWII negotiators limited themselves over a period of 44 years to create a series of incremental upgrades to the 1929 Warsaw Convention, satisfying some, but never all, and creating considerable confusion because some states had ratified the original convention but not the incremental upgrades and *vice versa*. The result was that neither the original 1929 Warsaw Convention, nor its supplemental Protocols, ever achieved complete acceptance. The 1999 Montreal Convention was adopted to replace, modernize and unify for the 21st century the much-fractured 1929 Warsaw Convention system.

The most significant aspect of the Cape Town Convention treaty-making process is that each of its Protocols in practice amends the base Cape Town Convention, and as a result the Cape Town Convention differs in relation to each one of its Protocols. Here is another related, less easily identifiable aspect, to the Cape Town Convention treaty-making process in contrast to earlier diplomatic practice where protocols were utilised to add to or amend conventions.[492] This structure presents a significant challenge to ensure that there is sufficient flexibility within the base Convention to accommodate the needs of different sectors within the relevant Protocols, while ensuring that the essential structural coherence of the UNIDROIT registration system and the legal effects of international registration are maintained, so that the equipment-specific modifications do not undermine the basic objectives of the base Convention. This is due to the fact that the base Convention and the relevant Protocol are to be read as a single instrument, the base Convention can only become applicable with respect to any category of equipment with the coming into force of the relevant Protocol (and only for the parties to the relevant protocol), each equipment-specific Protocol is controlling as it can amend or modify the base Convention where the special characteristics of the relevant sector make this necessary, and states' obligations under the base Convention will vary according to which of its Protocols they have adhered to.

[492] Chinkin and Kessedjian, 'The Legal Relationship Between the Proposed UNIDROIT Convention and its Equipment-Specific Protocols', 2 Unif. L. Rev. (1999), at 323 -334, at 324.

Degree of Private Industry Involvement: UNIDROIT emphasised the partnership between public and private sectors in establishing industry-specific international regimes.[493]

The convention plus protocol structure not only afforded representatives of the aviation, space and rail sectors flexibility to proceed at different speeds, but provided an invaluable opportunity to monitor the implications of the future Cape Town Convention's application in relation to the categories of equipment that most concern them.[494] Governments too were assured of an important element of flexibility under the proposed structure in that, having the opportunity to choose from a menu of protocols, they will be able to adopt the proposed new regimen only for those categories of equipment which interest them. This flexibility was demonstrated by the fourth MAC Protocol where the Committee of Governmental Experts met twice in 2017, with participation from over 50 states and various members of the MAC industry represented by the MAC Working Group.

There were indications early on in the drafting process that something different in treaty law is happening, in the sense that private industry got involved to an extent not seen before in treaty-drafting.[495] Many of the most innovative ideas involving the drafting process came for the aviation finance sector, reflecting the pioneering role which aviation law had traditionally tended to play in the finding of new international legal solutions able to respond to needs resulting from changing market conditions.[496] The Cape Town Convention presented perhaps the first instance of extensive intervention by an industry group in the formulation of international law,[497] but apparently that was not the original objective as the drafters had started with the objective to attain a balance between civil law and common law systems.[498] Once the commercial intervention was recognized by the sponsoring agencies though, it was inevitable that the international instrument

[493] Chinkin and Kessedjian, *Ibid.,* at 328.
[494] Stanford, *supra* note 485, at 248.
[495] Chinkin and Kessedjian, *supra* note 492, at 323.
[496] Stanford, *supra* note 485, at 246.
[497] Gopalan, 'Harmonization of Commercial Law: Lessons from the Cape Town Convention on International Interests in Mobile Equipment', *9 Law & Bus. Rev. Am. (*2003), 255-270, at 268.
[498] Wool, 'The Case for a Commercial Orientation to the Proposed Unidroit Convention as Applied to Aircraft Equipment', *31 Law & POL'Y INT'L Bus*. (1999), 79-98, at 82 and 92.

would be honed more with commercial considerations in mind than any outmoded considerations of finding a balance between the common law and civil law.[499] This pioneering role of the aircraft industry in the formulation of the Cape Town Convention heralded a new era where harmonization endeavours owe their success more to the demands of industry than those of academics or lawmakers. This presupposes there is a demand for international law in that particular area, as an industry that is inherently bottom-line oriented is unlikely to invest money and time on fruitless ventures. Another great advantage to involving industry extensively in the crafting of international legal instruments is that it acts as a powerful check against the creation of useless instruments. Examples of the monuments to the failure of harmonization when not properly addressed are the 1964 Conventions Relating to a Uniform Law, and on the Formation of Contracts, on the International Sale of Goods with only eight ratifications the last of which was in 1979.

This originated in the instruments concerned having highly technical areas of private law requiring non-state actor input into their drafting.[500] There was early interest from the aircraft industry, and input was directed via an AWG comprising aerospace manufacturers and financiers.[501] The AWG was set up by Jeffrey Wool, the expert consultant to the UNIDROIT Study Group and which collaborated with IATA and ICAO. It was only when the AWG, directed by Wool, came on the scene that the project really began to take off.[502]

By granting private industry a strong voice in the drafting process UNIDROIT had followed a highly progressive approach.[503] This is supported by no less an authority than the ESPI which indicated there are a number of lessons to be learnt from the two-step approach of the Cape Town Process.[504] It is crucial to involve experts from industry and other stakeholders to draft the particularly detailed provisions of the protocols, plus industry plays another, vital role when it comes to pressing governments to ratify the treaty, or not. ESPI contended that these lessons can be

[499] Gopalan, *supra* note 497, at 268-269, FN 102.
[500] Boyle and Chinkin, *supra* note 384, at 74-75.
[501] Boyle and Chinkin, *Ibid.*, at 75 added the work was from the outset strongly influenced by the expertise and commitment of Goode, the Chair of the Working Group.
[502] Goode, *supra* note 366, at 539.
[503] Sundahl, *supra* note 5,at 24; also the ESPI Report 57: Froehlich and Pecujlic, *supra* note 327, at 17.
[504] Pecujlic, *supra* note 292, at 148.

as useful for the space law community in the further adoption of hard law norms as for the general international law community. Here the important and unusual role of the private sector in developing international legal norms pushed the boundaries of public international law and necessitated some rethinking in some important areas of treaty law.[505] This trend for public-private initiative can also be observed in the ICAO Space Learning Group dealing with suborbital/space carriers launched in 2014, which led to work on the suborbital field to be restarted in France and a working group set up in 2015.[506]

Unparalleled emphasis placed on commercial expediency: This is a corollary flowing from the previous point the degree of private industry involvement in multilateral treaty-drafting.

The drafters had a clear vision that their end result should be practical and useful to the commercial sector:[507] The Aircraft Protocol Group ('APG' consisting of ICAO, IATA and the AWG and formed in 1997) had identified the commercial objective of the Cape Town Convention as being the lowering of aviation credit and the facilitation of asset-based financing of aircraft.[508] Accordingly, the aviation industry sought to ensure that the full benefits of an asset-finance based law would result. The APG also emphasized that for commercial reasons remedies must be non-exclusive, that is the additional remedies must also be available to the transaction parties, whether under the selected law where there is a contractual choice of law provision, or under the private international law rules of the forum which may include self-help remedies such as repossession, possessory management/receivership, and private sale. The rationale was that the right to gain prompt access to the asset is the *sine qua non* of asset-based finance. The recommendations regarding the timing of final court decisions were 'designed to ensure that the proposed convention's important basic substantive remedies are not

[505] Boyle and Chinking, *supra* note 384, at 323.
[506] Available at https://www.icao.int/Meetings/SPACE2016/Presentations/2%20-%20P.%20Desvall%C3%A9es%20-%20DGAC%20France.pdf#search=Suborbital%20space%20carriers%20group (last visited 8 September 2019).
[507] Sundahl, *supra* note 372, at 343; although Sundahl demonstrated this in relation to the Aircraft Protocol, and not the Space Protocol then still under negotiation, arguably this also applies to the latter.
[508] Gopalan, *supra* note 497, at 268-270.

undercut by Byzantine implementation rules or intended or unintended delays resulting from national procedural rules'.

Probably the best evidence for this argument is the non-ending attack by the vested satellite industry to try and prevent the Space Protocol from entering into force. Surely, if there was no commercial practicality, the Space Protocol could have been simply ignored?

Flexibility to respond to the idiosyncratic needs of the different industries involved. This is a reference to the use of alternate provisions, or 'opt-in' and 'opt-out' provisions, to overcome diplomatic opposition.

A state may make a declaration about its understanding of a matter contained in or the interpretation of a particular provision in a treaty.[509] Interpretative declarations of this kind do not purport to exclude or modify the legal effects of a treaty, and its purpose is to clarify the meaning of certain provisions or of the entire treaty and need not be signed by a person with full powers. Optional and/or mandatory declarations provided for in a treaty are legally binding on the declarant and has to be signed by a person with full powers. Unilateral declarations can cover interpretative, optional, or mandatory declarations, and some may be regarded as having the character of international agreements in their own right and are registered as such. Opt-in Declarations are binding commitments by states, whilst opt-outs declarations allow states to exclude applicability of certain treaty provisions to them. Treaty declarations should not be confused with the making of a reservation, which is another treaty law method to enable a state to participate in a multilateral treaty otherwise unwilling or unable to, and is a unilateral act by a contracting state purporting to exclude or modify a treaty provision and unless authorized by the relevant treaty is not binding on other states unless they accept it.

The most fundamental of asset-based financing principles is that, in exchange for a reduced interest or rental rate, a secured party/lessor will have the ability to promptly take possession of the asset and convert it into proceeds for application against the obligations secured, should there be default.[510] The international legal

[509] Treaty Handbook, *supra* note 2, at paras 3.5.1, 3.5.5, 3.6.1, 3.6.5, 3.6.2 and 5.5.3.
[510] Gopalan, *supra* note 497, at 269-270.

framework applicable to aircraft equipment financing did not facilitate the operation of this principle. It was thus important for the aviation lobby to change the law so as to satisfy this principle. They minced no words in outlining their purpose in taking such a proactive role in drafting the Cape Town Convention, and then through sheer hard bargaining they were able to craft innovative solutions that ensured that tough choices would not be eschewed. The suggested solution that won the day was the creation of a system of Declarations that allowed states to make choices based on the degree to which they wanted their legal systems to facilitate asset-based finance. Firstly, the *opt-in Declarations.* Article 39 deals with categories of non-consensual rights or interests which under that state's law have priority over registered international interests. Article 40 allows a state to list the categories of non-consensual right or interest which shall be registrable under the Convention as if it were an international interest. Article 60 pertains to the application of priority rules to pre-existing rights or interests, which retain the priority enjoyed prior to the effective date of the Convention. Secondly, the *opt-Out Declarations* where Article 54(1) allows a state to declare that while the charged asset is situated within its territory the chargee shall not grant a lease of that asset in that territory. Article 54(2) allows a state to declare whether or not any remedy available to the creditor under any provision of the Convention which does not require an application to the court can only be exercised with the leave of the court. Article 55 allows a state to declare that it will not apply the provisions of Article 13 (interim relief) or Article 43 (jurisdiction under Article 13), or both, wholly or in part. Article 50(1) allows a state to declare that the Convention does not apply to purely internal transactions.

Certain provisions of the Cape Town Convention are dependent on policy decisions by Contracting States, and the system of Declarations allows for choices to be made.[511] States have the option to modify their obligations to the Cape Town Convention by submitting at the time of ratification a Declaration stating such modification to the Depositary.[512] This option provides states with a remarkable flexibility in choosing from a menu of provisions that satisfy their desire to please

[511] Goode, *supra* note 4, at para 2.266.
[512] Sundahl, *supra* note 5, at 120.

political constituencies and make policy choices.[513] Relevant examples are the Cape Town Convention options to grant a lease of a space asset while located in the state, and the right to arrest or detain a space asset to repay amounts owed to the state agency.[514]

Would the Declarations not lead to fragmentation, and is it suitable for rules designed to harmonise? There is no requirement for a Declaration made by one Contracting State to be accepted by other Contracting States for it to be effective.[515] Whilst allowing so much choice may result in less harmonization and greater disparity, arguably the benefits far outweigh the risks as conventions that are over-ambitious are condemned to be shunned by countries that may not be willing to make the leap, and by allowing choice will at least allow countries to progressively reach uniformity.[516] Although the Cape Town regime is complex due to its complicated and esoteric subject-matter, the treaty system is user-friendly in that it gives Contracting States broad latitude in deciding which particular international legal obligations they wish to be bound by in addition to mandatory provisions.[517] This system of Declarations is highly respectful of state sovereignty, and of differing political, economic, and social environments, different speeds of economic development, and national requirements as perceived by governments. Moreover, it permits and facilitates changes in position in accordance with changing circumstances and needs. UNIDROIT, ICAO, AWG and IATA believed that this 'building block' approach is the key to fostering sufficiently widespread acceptance of the Cape Town Convention and the Aircraft Protocol.[518]

Whilst a Declaration applying or excluding a provision of the Cape Town Convention is authorized by the Cape Town Convention itself and requires no acceptance from other members,[519] the general ban on treaty reservations and the limited list of Declarations explicitly permitted preserve the uniformity of the

[513] Gopalan, *supra* note 497, at 270.
[514] Articles 54(1) and 39 of the Cape Town Convention; and Sundahl, *supra* note 5, at 121-122 for the complete list of opt-in and out Declarations.
[515] Goode, *supra* note 4, at para 2.278.
[516] Gopalan, *supra* note 497, at 270.
[517] Clark, *supra* note 481, at 8.
[518] Clark, *Ibid.,* at 18.
[519] Articles 2(1)(d) and 20 VCLT; Article 56 of the CTC explicitly allows Declarations but not Reservations; Goode, *supra* note 4, at paras 2.279 and 4.331.

application of the Cape town Convention among the different participating states. This is a critical feature to any efficient regime of commercial law.[520]

A Contracting state may withdraw from a Declaration made, but the withdrawal notice will take six months to take effect and will not affect any rights and interests that arose prior to the effective date of withdrawal.[521] Presumably this may happen if economic or political circumstances change post-ratification, which allow Contracting states even more flexibility.

The Commentaries: The publication of a detailed Commentary providing an overview and Article-by-Article analysis of the Cape Town Convention and each protocol, was considered to be the final important step.[522]

The Official Commentary on the Space Protocol was prepared by the Reporter pursuant to Resolution No.5 adopted at the Diplomatic Conference in Berlin and annexed to the Final Act. It was designed to be an authoritative guide to the Cape Town Convention and the Space Protocol. Although not binding on national courts, the hope was expressed they will have due regard to is as it contains the extensive consultation with negotiating governments and participating observer organisations.[523] The Space Protocol commentary is in five parts. Part one provides a brief history of the Cape Town Convention and all the protocols to it, part two a review of the Cape Town Convention, part three a review of the Space Protocol, and parts four and five provide an Article-by-Article analysis of the Cape Town Convention and the Space Protocol.

The provision of a Commentary to a draft treaty is not that uncommon, for example the ILC commentaries on the draft Articles on the Responsibility of States for International Wrongful Acts 2001.[524] Nevertheless, the UNIDROIT Commentary

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[520] Sundahl, *supra* note 4, at 122.
[521] Article 58(1) of the CTC read with Article XLV(1) of the Space Protocol; Sundahl, *Ibid*.
[522] Boyle and Chinkin, *supra* note 384, at 76.
[523] Goode, *supra* note 4, at paras 6-7 Introduction.
[524] International Law Commission Report, A/56/10 August 2001, Report on the work of General Assembly, Official Records, Fifty-fifth Session, Supplement No. 10 (A/56/10), available at http://www.un.org/law/ilc/ (last visited 16 August 2017); Crawford, (Special Rapporteur), 'State Responsibility', in *Yearbook of the International Law Commission*, 2001, vol. II (Part One), 1-98; at 3, available at http://legal.un.org/ilc/texts/instruments/english/draft_articles/9_6_2001.pdf (last visited 15 Sept 2019); For more detail, see the International Committee of the Red Cross discussion at

is unique as it is not a preparatory step in treaty-making but a much more detailed legal discussion of the finished Articles, plus it also contains the comments of the negotiating governments and participating organizations. In addition, the UNIDROIT Commentaries is an extremely effective tool in promoting the instrument.

2.9 Space Protocol Legacy

The Space Protocol may not be in force yet, but that does not mean that it is without any positive effect.

Benefits to the Law of Secured Financing: The Cape Town Convention was lauded as the most significant piece of private international law in recent history,[525] which created a new regime for financing assets in the capital-intensive sectors of aviation and rail and space industries.[526] It provided a stable international legal regime for the protection of secured creditors, conditional sellers and lessors of aircraft objects, railway rolling stock and space assets.[527] This substantive legal regime of international secured credit law cut new ground in international commercial law.[528] As such the Cape Town Convention was even considered to represent a new *lex mercatoria* for international secured transactions.

The Space Protocol provided an excellent opportunity for the international society to examine possible rules for space financing, and was reportedly considered crucial for China.[529] First, China's expertise in satellite manufacturing and launching will benefit from the predictable space financing regime, and secondly financial institutions may provide a better condition for space financing for consumers from the member states of the Space Protocol since it effectively protects the interests of the creditors. When the transactions take the form of processing contracts, China

https://casebook.icrc.org/case-study/international-law-commission-articles-state-responsibility (last visited 15 September 2019).

[525] Gopalan, *supra* note 497, at 255-256.

[526] Sundahl, *supra* note 5, at 1.

[527] Goode, *supra* note 4, at para 2.1.

[528] Davies, *supra* note 371, at 153-154.

[529] Zhao, 'Legal Issues in China's Future Participation in the Space Protocol to the Cape Town Convention', in P. Sterns and L. Tennen (eds.) *Private Law, Public Law, Metalaw and Public Policy in Space* (2016), 67-79, at 68 and 72.

shall remain the owner of the satellite and undertake risks before the final on-orbit transfer of the operating satellite. Under such a situation, China will need to arrange space financing for the production and launch of satellites and may similarly benefit with the satellite as security.

Space insurance is important for the arrangement of space financing and thus indispensable for high-risk space activities. Here the Space Protocol's introduction of the concept of 'salvage' in Article IV(3) was to provide assurance that legal or contractual rights of salvage are not affected, so that any priority dispute will be resolved by the applicable law as determined by the rules of private international law of the forum state.[530]

The Cape Town Convention regime changed the traditional approach in private international law to property rights.[531] The long-established rule in many jurisdictions that dealings in goods are governed by the law of the country in which the goods are situated at the time of the dealing in question (the *lex situs* rule) worked well enough, but is inappropriate for dealings in mobile equipment which crosses national borders and the location of which at any given time may be quite fleeting. Satellites and other space assets gave rise to special problems, including the question of what law governs dealings in assets in outer space? Here the *lex situs* rule leads to the conclusion that there is no law governing dealings in such assets. That, indeed, was one of the arguments advanced in the *ProtoStar Chapter 11 proceedings* in Delaware where creditors claiming to hold security over satellites in space were met by the argument that since the priority of secured creditors depended on the applicable national law and since there was none, all creditors ranked *pari passu.*[532] The compromise reached involved the secured creditors giving up a significant proportion of the value of their collateral. Goode believed the court could have fashioned a deemed *situs* rule, for example by treating the satellites as situated in their state of registry under the 1975 Registration Convention.[533] The substantive rules laid down by the Cape Town Convention

[530] Goode, *supra* note 4, at para 3.25
[531] Goode, *supra* note 366, at 536.
[532] *In Re ProtoStar Ltd US Bankruptcy Court for the District of Delaware,* Case No 09-12659 (MFW), motion of Official Committee of Unsecured Creditors dated 21 October 2009, at para 28.
[533] Goode, *supra* note 366, at 537.

largely displace the need to have regard to the otherwise applicable law and applies in a Contracting State regardless of the otherwise applicable law. It expressly deals with the assignment of rights to payment under a security agreement, as for space assets the main collateral relied on is not the physical object in outer space which is of limited value but the so-called 'debtor's rights' which are the rights of the debtor against third parties for license fees etc. which are assigned to the creditor as additional collateral (Articles I, IX-XV).

Benefits to Space Law: By accepting von der Dunk's redefining of space law *sensu lato* and the resultant new regimes being included (in particular UNIDROIT's Space Protocol complementing the Cape Town Convention as a legal regime *strictu sensu* developed for relevant space activities),[534] and supporting Zheng's description of the Space Protocol as the first international space law treaty created for unifying private law related to space equipment financing,[535] the Space Protocol cannot be simply dismissed as a debt collection treaty but rather as an instrument that does in fact enrich space law *lato sensu*.

The intersection of these instruments with existing space law requires an understanding of how space law may affect the transaction at hand,[536] and are also specifically subordinated to existing space law treaties. On the other hand, space law and contracts are exposed to various influences extending beyond public international law to include private and international private aspects of the law as well.[537] This does not signify any more than the interdependencies between the various disciplines of the law where different actors are involved, thus merely the interaction between the international and the domestic level and should not be taken to imply a fragmentation of international space law. The Space Protocol arguably addressed in a positive way the issue of liability for damage caused by a space

[534] von der Dunk, *supra* note 29, at 124-125; See 3.5 below.
[535] Zheng, "UPDATE: A Legal Analysis of "Space Asset" Under the 2012 Space Protocol to the International Interests in Mobile Equipment", *New York University Global* 2018, at 11, available at http://www.nyulawglobal.org/globalex/Space_Asset_Protocol_Cape_Town_Convention1.html (last visited 29 May 2019).
[536] Sundahl, *supra* note 4, at 119-120.
[537] Smith, *supra* note 56, at 55.

object,[538] rescue,[539] jurisdiction,[540] the Moon Agreement,[541] and even the relevant ITU instruments.[542] The Space Protocol's greatest contributions may well be influencing the debates on the delimitation of outer space, the definition of space object, and building blocks for space resources.

Influence the long and unsolved debate on the delimitation of outer space: The lack of international agreement as to any boundary between air-space and outer space, does not create uncertainty as to the existence of space law, but as to the exact location of its application.[543] UNCOPUOS did consider it initially, but in its First Report of 14 July 1959 took the unfortunate view that no priority should be given to delimitation question and indeed that agreement would be premature. This question remains unanswered on the agenda of the LSC to this day.

In defining the term Space Asset in Article I(k), the Space Protocol mentioned the condition that the object or equipment must be '[physically located] in [outer] space'.[544] This is not a problem for an on-orbit satellite/object or beyond orbit, but without a definitive answer on the delimitation of outer space it is not clear whether an object or equipment qualify as a Space Asset when it is physically located below an altitude of 100 kilometres (the von Kármán line), in an altitude of 100 kilometres, or in sub-orbital area which may reach 105 kilometres.

Two main theories on delimitation have come to the fore.[545] The spatialist group of countries supporting a clear delimitation of the frontier between air- and outer space on the basis of scientific or commonly agreed criteria, but the functionalists

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[538] Outside the scope of this research: For more detail see CoCoSL II*, supra* note 126, at REG; Sundahl, *supra* note 5, at 141-147; Lyall and Larsen, *supra* note 36, 403-404.
[539] Outside the scope of this research: For more detail Sundahl, *Ibid.*,at 159-165, 116-118; CoCoSL II, *Ibid.,* at ARRA.
[540] Outside the scope of this research: For more detail see Sundahl, *Ibid.*, at 180-182.
[541] Outside the scope of this research: For more detail see Sundahl, *Ibid.*, at p 177-180.
[542] Outside the scope of this research: For more detail see Sundahl, *Ibid.*, at 180-185; Van Fenema, '"The UNIDROIT Space Protocol", the Concept of 'Launching State', Space Traffic Management and the Delimitation of Outer Space (Report of the 41st Session of the UNCOPUOS Legal Sub-Committee)', *27 Air & Space L.* (2002), 266-279, at 27.
[543] Lyall and Larsen, *supra* note 36, at 143.
[544] Zheng, *supra* note 535, at 6; note this is an update of his earlier 2014 article, and words inserted in brackets by author.
[545] Bittencourt Neto, 'Delimitation of outer space and Earth orbits', in Y. Failat and A. Ferreira-Snyman (eds.), *Outer Space Law Legal Policy and Practice* (2017), 43-54, at 44; this thesis is not an exposition on the delimitation question and for more detail von der Dunk, *supra* note 29, at 60-72; Lyall and Larsen, *supra* note 36, at 145-151.

maintain that such delimitation is unnecessary or even impossible, so that activities performed by those states should be considered in relation to their respective objectives.

The problem is that no treaty, UN space law or other related to air and space law, defines the upper borders of airspace, and for now, although partial consensus appears to exist on delimitation between 80 and 120 kilometres above the surface of the Earth, it has not yet been widely accepted by the international community.[546] That said, the issue in identifying a Space Asset may not be as serious as it appears, insofar as the Space Protocol has also provided a parallel category of the object or equipment 'designed to be launched into space'. Arguably here 'into [outer] space' still involves the delimitation issue and needs clarification anyway, but what is important in this phrase is 'designed to be...', which provides an opportunity to bypass the unsettled delimitation issue. This phrase was interpreted as a functionalism approach for defining Space Assets, as long as the aim, objective, or purpose of an object or equipment is designed as space-oriented and not as aircraft-oriented.

Others advised a multilateral delimitation of the frontier between airspace and outer space by way of a compromise between the spatialist and functionalist approach.[547] There is a convincing argument that the Space Protocol has adopted both the spatialist approach, that the object is literally located *in* outer space, and the functionalist approach, in the sense that the purpose or aim for the object is *space oriented* regardless of the object's actual physical location, which indeed has broadened the scope of the Space Asset and may better serve financiers' interest.[548] Thanks to the functionalist approach, the Space Asset covers not only an object or equipment already located in outer space, but also an object or equipment that has not yet been launched, such as an object being manufactured, in storage, *en route* for launching, or on the launch pad.

[546] Zheng, *supra* note 535, at 6; author's emphasis.
[547] Bittencourt Neto, *supra* note 545, at 44.
[548] Zheng, *supra* note 535, at 10; author's emphasis.

Extend the definition of a space object: In space law there is no formal definition of space object and its meaning is unclear too.[549] The 1967 Outer Space Treaty only mentions Space Object in Article X, the 1968 Rescue Agreement mentions 'Space Object or its component parts', the 1972 Liability Convention and 1975 Registration Convention both mentions 'launches or procures the launching of a Space Object' and explained that the term Space Object 'includes component parts of a Space Object as well as its launch vehicle and parts thereof', and the 1979 Moon Agreement mentions '... in relation to the Earth, the Moon, spacecraft, the personnel of spacecraft or manmade Space Objects' and 'a Space Object or its component parts'.

Possibly to ensure that there will be no reference to 'space object' as utilised in the outer space treaties, the Space Protocol plus Cape Town Convention are to be known collectively as the Convention on International Interests in Mobile Equipment as Applied to Space Assets.[550] In addition, as the Cape Town regime does not affect the existing UN space law treaties or instruments of the ITU, where objects or equipment qualify as both a space asset and a space object, the applicable UN treaty rule(s) would prevail.[551] The quite complicated relationship between space assets and space objects is demonstrated in table format.[552]

The term *space assets* was utilised in the Space Protocol in order to avoid confusion with the term *space object* used in outer space treaties, and to more accurately reflect the commercial finance nature of this instrument.[553] A transaction will be governed by the Space Protocol when it is man-made (not an asteroid), and the object is either in space or designed to be launched into space. This captures payloads and spacecraft or components thereof in any stage whether in a state of manufacture, in storage, *en route* to a launch site, or on the launch pad.

The comments above are not without criticism.[554] The definition of Space Asset based on the phrase 'in [outer] space' under Article 1(2)(k) of the Space Protocol

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[549] See in general Zheng, *supra* note 360.
[550] Article II(2) Space Protocol; presumably post entry into force, thus after the required ten ratifications.
[551] Article XXXV SAP; Zheng, *supra* note 535, at 9.
[552] See Appendix D: Comparison Table Space Assets vs Space Objects; based on Zheng, *Ibid.,* Figure IV at 10-11, and 9-12.
[553] Article II(3) of SAP; Sundahl, *supra* note 5, at 33-34 especially FN 23; author's emphasis.
[554] Zheng, *supra* note 535, at 11 and 1- 3; emphasis by author.

is not clear, since the debate of delimitation of outer space has not been resolved at an international level. An Aircraft Object as defined under the Aircraft Protocol is not governed by the Space Protocol even if it is designed to temporarily stay in outer space. However, given the fact that the words 'primarily', 'use' and 'temporarily' are not precise enough, an Aircraft Object which is primarily designed for use in outer space can be governed by the Space Protocol as if it is a space asset *de facto*, regardless of its actual physical location. The main difference between a space asset and a space object is that the former is private and commercial law-oriented, high-value oriented, and is mainly linked to private financial entities and their private interests, while the latter is public law-oriented and mainly connected with state obligations, responsibilities, and liabilities under public international law. There are similarities and overlapping areas between the two concept, and where an object or equipment qualifies as both a space asset and object, the applicable UN outer space treaty rules shall prevail. However, despite shortcomings (vague wording, missing definitions and over-elaborated rules and regulations), the concept of Space Asset was considered a huge development in contemporary international space law formed mainly via the UN space law treaties.

Space is defined in sub-Article I(j) Space Protocol as 'outer space, including the Moon and other celestial bodies', which is consistent with UN space law treaties.

There are certain requirements in terms of sub-Article I(k) Space Protocol that must be fulfilled for space equipment or objects to be qualified as a space asset under the Cape Town Convention regime. First the object or equipment must be *man-made*, and minerals or asteroids from the moon or other celestial bodies are unlikely to be treated as space assets *per se*, unless the natural resource from space is transformed through human activities into new form, material, or object.[555] Secondly, the object or equipment must be *uniquely identifiable* under the Cape Town Convention regime. A description of a space asset is sufficient for identification if it contains one or more of the following elements, namely a description by item or by type, and a statement that the agreement covers all present and future space assets or all present and future space assets except for specified items or types. These

[555] Sundahl, *supra* note 5, 4-6; author's emphasis; Cape Town Convention Article 7(c); SAP Article VII.

identification criteria for space assets are for registration purposes,[556] and were criticized as vague, generic and open-ended possibly as the Space Protocol was not drafted to add burdens and duties for private entities to increase costs and add confusion to an already expensive and complicated activity.[557] It was advised that this element should be satisfied by any feature that enables identification through serial number, physical feature or some other manner.[558] Thirdly, the object or equipment must be *in outer space; or designed to be launched into outer space*. Thus, the Space Protocol adopted both the spatialism approach, the object is literally located in outer space, and the functionalism approach, the purpose or aim for the object is space oriented regardless of the object's actual physical location.[559] Fourthly, the object or equipment must be a *spacecraft* whether or not including a separate registered space asset; a *payload* which is separately registered; or *a part of a spacecraft or payload*, together with *attachments* which include all installed, incorporated or attached accessories; and parts and equipment and all data, manuals and records relating thereto.[560] Thus, a space asset also covers all attachments related to the spacecraft or payload as widely as possible, even including data, manuals and records. The last-mentioned are separately registrable, which means that it is possible for the designing records of a satellite to be treated as space assets even if the satellite has not been made or is not able to be made in the future, as long as the unmade satellite is designed to be launched into outer space. The spacecraft could be manned or unmanned.[561] Fourthly, equipment or related parts must be *separately registrable* according to the regulations governing the registration of international interests in space assets.[562] This registration requirement differs from the state obligation under the 1975 Registration Convention, as here the private financiers' security interests created on the space

[556] According to the UNIDROIT Secretariat, Intersessional Consultations with Representatives of the International Commercial Space and Financial Communities (Rome, 18 October 2010): Report, C.G.E./Space Pr./5/W.P.4, at 6.
[557] Zheng, *supra* note 535, at 6.
[558] Sundahl, *supra* note 5, at 35.
[559] Zheng, *supra* note 535, at 6; author's emphasis.
[560] Articles 16 and 17 of CTC Article XVIII SAP.
[561] Sundahl, *supra* note 5, at 37.
[562] Zheng, *supra* note 535, at 6.

asset are under concern. It is the Supervisory Authority to be created, which will make the determination as to whether a part can be uniquely identified or not.[563]

Influence on the Building Blocks for the Development of an International Framework for the Governance of Space Resource Activities: The Hague International Space Resources Governance Working Group ('HWG') was established in 2015 with the objective to assess the need for a regulatory framework applicable to the use of mineral and volatile materials on the Moon and other celestial bodies, as well as to lay the groundwork for international deliberations on the potential development of such an international framework.[564] It designed, and adopted 20 Building Blocks on 12 November 2019, which are intended to provide a foundation that states, IGOs and NGOs can consider in the development of an international framework for the governance of space resources activities. A quick glance at this monumental work indicates that the authors had relied on all five the outer space treaties plus the major UNGA resolutions dealing with outer space. Interestingly, there is no direct reference to the Space Protocol in the HWG's Commentary on these Building Blocks, in spite of the indirect comments thereon. First, a working method redolent of the Cape Town Convention method. It promoted international cooperation and multi-stakeholder dialogue between members and observers representing governments, IGOs, academia, industry and other actors of the global civil society, including UNOOSA. Secondly, from the first face-to-face meeting in April 2016, which considered the institutional arrangements needed for the establishment of the international legal framework, an international registry for the registration of exclusive rights of operators to search and recover space resources, was suggested.[565] During the compilation of the Building Blocks a view was expressed that priority rights, irrespective of its connection to space resources, could eventually be transferred to third parties, in accordance with provisions to be progressively determined by national law or international agreements. Although Article 11 of the Moon Agreement makes

[563] Sundahl, *supra* note 5, at 37.
[564] Bittencourt Neto, *supra* note 545, at 11, 17.
[565] Bittencourt Neto, *Ibid*., at 4, 7, and 59; note Building Block seven on Priority rights: 'The international framework should enable the attribution of priority rights to an operator to search for and/or recover space resources for a maximum period of time and a maximum area upon registration in an international registry and provide for the international recognition of such priority rights.'

specific provision for an international regime to be created to govern the exploitation of the natural resources of Moon, the above is indicative of the Space Assets International Registry considered in the Space Protocol. Thirdly, the specific definition of a space object as 'an object launched into outer space from Earth, including component parts thereof as well as its launch vehicle and parts thereof'.[566] This, apart from the fact that it does not include an asset yet to be launched, is much more suggestive of elements of the Space Asset definition of the Space Protocol. Previously space objects were defined more simply as objects launched or attempted to be launched into outer space plus their components and launch vehicles.[567] It can be deduced from the impressive work done by the HWG that UNIDROIT's Space Protocol, although not acceptable to the satellite industry, does influence space lawyers apparently. Maybe that is why UNIDROIT was recently described as an organization now engaged in *space related law making*.[568]

Benefits to Treaty Law: The Cape Town approach of a framework convention with controlling protocol was described as unusual, as protocols are normally utilized as amending instruments.[569] The Cape Town Convention and the Space Protocol are to be read and interpreted together as a single instrument, but in the case of any inconsistency it is the Protocol that will prevail and this is what distinguishes the Cape Town Convention protocols from those known previously in international law, which merely supplements the conventions to which they relate but do not control them.[570]

Sundahl went further by stating that the dismal outlook for the future of treaty law was brightened by a new method of structuring treaties that was created in the

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[566] Art. 1(k) SAP: The spacecraft, its payload or parts thereof such as a transponder 'together with all installed, incorporated and attached accessories, parts and equipment and all data, manuals and records relating thereto'; Bittencourt Neto, *Ibid.*, at 18.
[567] See Larsen and Heilbrock, 'UNIDROIT Project on Security Interests: How the Project Affects Space Objects, *64 J. Air L & Comm* (1999), 703-770, at 736 ('Larsen and Heilbrock'); Yun, 'Revisiting Selected Issues in the Draft Protocol to the Cape Town Convention on Matters Specific to Space Assets', *76 Journal of Air Law & Commerce* (2011), 805-831, at 827.
[568] See Hobe, *supra* note 6, at 46; Note at 47 this author considered the other normative fora which created rules for human activities in outer space via soft law 'emanations' to be the ILA via its reports, the IAA through its studies, and the IISL though its position papers, and he included STSC via its technical reports as another fora; the author also described UNIDROIT as separate from the UN, but note it has been a permanent observer at COPUOS since December 2021, see *supra* note 77.
[569] Davies, *supra* note 371 at 165.
[570] Articles 1(u), 2(3), 6(1) and (2), 49(1); Goode, *supra* note 4, at paras 2-12.

process of drafting the Cape Town Convention.[571] This novel method of creating treaties, which Sundahl labelled the 'Cape Town approach', promised to rescue treaty law from its current malaise by introducing greater flexibility into the structure of treaties which can facilitate the resolution of disputes that threaten to stall a treaty negotiation. He predicted that the Cape Town approach is a new tool for making international law.[572] The veracity of this prediction may have been verified since by the Rail, Space, and MAC Protocols.

After Sundahl had the opportunity to observe the first three Protocols, he commented that the Cape Town regime has a remarkable structure due to its unprecedented use of supplementary protocols.[573] The Cape Town Convention is the base Convention that contains the bulk of those fundamental rules common to all industries covered. The base Convention operates in conjunction with the three protocols, which contain rules that are tailored to the needs of a particular industry. This unique structure provides the flexibility needed to respond to idiosyncratic requirements of the different industries involved. Furthermore, the Cape Town Convention regime was ground-breaking in other respects such as the degree to which private industry was involved in the drafting, the primacy placed on commercial expediency, the merging of common law and civil law concepts, and the extensive use of opt-in and opt-out provisions to promote broad ratification.

These comments by Sundahl should not be accepted blindly. Experience in treaty drafting indicates that the last four innovative features discussed (private industry involvement, commercial influences, flexibility, and the publication of a Commentary) actually do occur in international law-making, but simply not to the extent utilized in the Cape Town Convention regime nor in combination. This can only be ascribed to the fact that the treaty negotiations were not concluded in the formal and somewhat staid UN system, but in a private law harmonization IGO that was willing to attempt new innovative features in order to break the logjam in negotiations. Arguably it is the first two innovative features, and then in combination, namely the unparalleled use of protocols plus the relationship

[571] Sundahl, *supra* note 372, at 341.
[572] Sundahl *Ibid.*, at 339 and commenting on the Aircraft Protocol in 2006 before the Space Protocol was finalized.
[573] Sundahl, *supra* note 5, at 22-23.

between the base convention and protocols, which created a new method for treaty-making. That said, the final step leading to the success of the Cape Town approach is the provision for the preparation of a detailed Commentary within a short period after the Final Act has been signed.[574] It has become so much a part of the UNIDROIT process that practitioners in the relevant field not only expect it but rely on it immediately as an authoritative exposition of what the drafters of the treaty had in mind.

In any event, the unique UNIDROIT model of convention plus protocols has been lauded as a valuable lesson and inspiration for the international legal community.[575] A unified, over-arching convention, which avoids diverse interpretations, prevents inconsistencies and is not cluttered-up with specific details, is an important innovation, which could be leveraged in the future. The ideas of having detailed protocols drafted with the help of industry experts, plus the option of adopting those protocols with the base convention in order to avoid double ratification, should not be ignored. The Cape Town Convention treaty-making was seen as a good way to resolve issues such as space debris and resource utilization. The ESPI recommended that the UNIDROIT unique model of convention and protocols brings a valuable lesson with it and offered an inspiration for the international legal community. The improved treaty-making method of the Cape Town Convention regime could be a possible good way to resolve issues such as space debris and resource utilization.[576] The Cape Town regime treaty-making method, especially adding a protocol to an existing and relevant convention, was proposed to deal with the various intellectual property issues in outer space.[577] The major problems is the question as to patentability, thus whether an invention in outer space may be granted patent protection, and jurisdiction regarding which nation-state's patent law will

[574] Goode produced the Commentaries at speed: Resolution Five Berlin Diplomatic Conference was signed 9 March 2012, and the Official Commentary on the Space Protocol was published in April 2013.
[575] Froehlich and Pecujlic, *supra* note 327, at 51.
[576] Pecujlic, *supra* note 292, at 153.
[577] Dolderina, 'IP Rights in the Context of Space Activities, in F. von der dunk and F. Tronchetti. *Handbook of Space Law* (2nd ed. 2015), 949-994; at 991-992; note she suggested this instrument should be of a totally procedural character, with a sole purpose to resolve the conflict of laws in this field, to be adopted within the WIPO and with the active involvement of UNIDROIT, and to benefit from the preparatory principles developed by European Max Planck Group for Conflict of Laws in Intellectual Property.

apply. Such an 'update or improvement' is much less cumbersome to negotiate, or potentially not so difficult or controversial to agree as a new treaty.

Goode, who as Rapporteur and Commentator was intimately involved with the Cape Town international instruments negotiations, underlined the obstacles to the creation and protection of the international interest, and the need to meet the differing requirements of aviation, railways and space, and which forced the progenitors of the Cape Town regime to invent a range of novel techniques in international law-making.[578] This author described eight distinctive features: First, the international interest; instead of having to rely on a national interest the creditor is provided with a new animal, the international interest, which derives its force from the Convention, not from national law and which can be created with the minimum of formalities. Secondly, the creation of an International Registry and its Supervisory Authority. Fourthly, the two-instrument approach. Fifthly, the controlling force of the protocol. In fifth place the invasion of areas previously taboo, as these international instruments addressed matters which should be exclusively for national domestic law (in particular substantive rules on property rights, the priority of competing interests and the impact of insolvency). Goode explained that property was thought too embedded in domestic law to be suitable for substantive provisions, matters relating to property being governed by national law under the *lex situs* rule. Sixth, the Declaration system facility which allows Cape Town Convention rules contrary to the settled legal philosophy of a Contracting State, to not apply unless that state makes an opt-in declaration, while certain other provisions can be the subject of an opt-out declaration. Furthermore, in seventh place, the post-adoption changes, which are the two provisions designed to allow certain limited changes to be made to the text without the need for further consultation with negotiating states.[579] The question of linguistic alignment arose ad UNIDROIT usually works in two languages, English and French, and its drafting committees produce parallel texts, which Goode was keen to point out were not translations. ICAO though had five working languages at the time and decided to add Chinese as a sixth language of the Cape Town diplomatic conference. While

[578] Goode, *supra* note 366, at 526-532.
[579] Goode, *Ibid.,* at 533-534; Note that this differs from Article 40 VCLT (amendment of multilateral treaties) or Article 41 VCLT (modification of multilateral treaty *inter partes* by certain parties to it).

a drafting Committee can cope with two languages, even one extra language would produce an exponential complexity and the work would never be completed. The solution adopted was to draft in English and then send the text down the wire from Cape Town to ICAO's bank of professional translators in Montreal for translation into the five other languages and transmission back to Cape Town. But the work of translators, however well qualified, cannot compare with that of a draft committee consisting of trained lawyers and, moreover, those thoroughly versed in the substantive subject-matter. The result was delegation after delegation at the diplomatic conference rising to criticize the parallel texts. The problem was that diplomatic protocol required the signature of texts in all six languages of the Cape Town Diplomatic Conference, and the neat solution adopted was to include a provision in the Final Act making the texts subject to verification by the Joint Secretariat of the Conference under the authority of the President of the Conference within a period of 90 days as to the linguistic changes required to bring the texts in the different languages into conformity with one another. This was done, and subsequently the same technique was adopted for the Luxembourg and Space Protocols. Lastly, the UN Convention on the Assignment of Receivables in International Trade (12 December 2001) contained certain provisions on the assignment of rights that overlapped and were potentially inconsistent with those of the Cape Town Convention, was envisaged as reaching a Diplomatic Conference first, but in the event was not to be adopted until a month later.[580] The issue was thus, how then could the Cape Town Diplomatic Conference ensure that its own provisions prevailed? The solution was a resolution of the Cape Town Diplomatic Conference that upon the deposit of the UN Convention with the UN Secretary General a new article, Article 45*bis*, should be inserted into the Cape Town Convention providing that in case of conflict that Convention should prevail. Arguably this was a novel and ingenious method by which a convention can be made to override a subsequent convention, however on provision that the later Diplomatic Conference does not pass a similar resolution.

Goode is correct that the Cape Town instruments brought a new dimension to international law-making in that they deal with areas of private law previously

[580] Goode, *Ibid.,* at 534.

regarded as exclusively for national law, recognizing that it is necessary to think outside the boundaries of national law in devising new solutions to international problems. One of the key features of the international interest which the Cape Town Convention and its Protocols create is that it constitutes a right *in rem* and is a creature of the Convention, not of national law. Yet the public interest, both in national security and in the continuance of public services, also means that there are likely to be more areas in what is basically a private law convention which will also contain public law provisions. The instruments are also of interest in that, though primarily regulating the rights and obligations of private parties, they also impose duties on Contracting States.

The basic guidance provided by the Cape Town regime to drafters of treaties, as summarised by Goode, must be supported.[581] As to the underlying principles he highlighted it has to be practical as the rules have to be workable, with party autonomy as they know best what is necessary to achieve their aims. Moreover, predictability is of the utmost importance with the high sums involved, (displacing good faith as a usual canon of interpretation), and the registration system was designed to ensure transparency so that third parties are not affected by hidden liens and the Cape Town Convention and its protocols give protection to the creditor in the event of the debtor's insolvency. Sensitivity to national legal cultures is respected is its basic legal philosophy, through the provision for Declarations by which certain provisions apply only if states make an opt-in Declaration, while for certain others a state may opt out. Needless to say, there is necessity to procure ratifications.[582] What is often overlooked is that when an international instrument is adopted one is only half-way there. In this the AWG supported the work of UNIDROIT, and engaged with governments around the world urging them to ratify the Cape Town Convention and its Aircraft Protocol, and provided advice and assistance. Goode considered the success of these instruments as due not only to their intrinsic quality and economic value, but also to the continuing efforts of the AWG. More hard work is always required post-adoption of treaties.[583]

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[581] Goode, *Ibid.,* at 527.
[582] Goode, *Ibid.,* at 540.
[583] See Appendix A: Participation Observation.

Furthermore, the well organised and structured methodology of the UNIDROIT Secretariat in its treaty-making was evidenced in the many different meetings held by many different organisations on the draft Space Protocol before its adoption by the 2012 Berlin Diplomatic Conference. To be supported is UNIDROIT's commendable principle of moving treaty-drafting from political forums to technical forums, and the level of industry participation and government and industry cooperation.

2.10 Conclusion to Chapter 2

UNIDROIT's method of making treaties is indicative of the way to proceed, but unfortunately the Space Protocol itself did not find favour with those that mattered in the space law world. Is there perhaps a middle-ground to be explored, perhaps with lessons from UNIDROIT?

Chapter 3: Middle Ground International Space Law-making

3.1 Introduction

Since 1979, UNCOPUOS and the UNGA have left the path of space law-making in the form of 'hard treaties', and their method of law-making by consensus was not effectively applied anymore, at least not regarding the adoption of international agreements.[584] Attempts to revitalize its legal regime have met with failure. The other (quasi-) legislative organ of the UN is the Security Council, with the power to issue binding decisions, but limited to the maintenance of international peace and security.[585] The Outer Space Treaty extends Security Council competence to outer space, but so far has not been called upon in the context of outer space. The third major UN organ, the ICJ, has not yet been seized of a case concerning space.

It was perhaps the increased interest in and fragility of space commercialization that encouraged the development of international private law, with the most striking example being UNIDROIT's Space Protocol.[586] In the era of globalization, in-tandem cooperation is transforming into intentional integration.

Could there be something in the middle between UNCOPUOS and UNIDROIT that amalgamates both treaty-making methods? To answer this, first it is necessary to unpack the comparison of these two entities, and to consider what it takes to make international norms for outer space.

3.2 Conclusions on UNCOPUOS vs UNIDROIT comparison

There are many entities in the international world, and not every organized structure in international relations happens to be an IGO.[587] If an organization is not based on an international treaty, a broad understanding of the term regime can still enable a categorization on the continuous scale of different forms of organization, for example treaty regimes for the protection of human rights with their supervisory bodies or tribunals and courts, and treaty regimes for the survey of the

[584] Hobe, *supra* note 6, at 209-210.
[585] Articles 39-42 UN Charter; Article III OST.
[586] Gabrynowicz, *supra* note 243, at 1061 and 1065; written in 2004 when the Space Protocol was still under development.
[587] Ruffert and Walters, *supra* note 27, at paras 14-15.

implementation of environmental standards. A regime is a construction of public international law that serves, based mostly on an international treaty, to fulfill common tasks of the states involved, creates objective obligations, and provides comprehensive mechanisms. Beyond the UN Agencies there is another category of global IGO's which includes bodies created within the framework of a treaty intended to establish substantive rules regulating conduct within a specialized area but that are not (fully) part of the UN system.[588] In fields such as trade and telecommunications, important treaties with broad membership have established institutional arrangements for the implementation, development and review of the treaties' substantive aims and objectives. These take a variety of names and forms, from 'commission' or 'committees' to '*ad hoc* conferences' or 'meetings of the parties to the treaty'. Sometimes these are referred to as 'treaty organizations' with international legal personality and varying capacity and powers at international and national levels, rules of procedure and membership and enumerated powers relating to decision-making and adjudication. These IGO's are products of the somewhat *ad hoc* character of international law-making. It should be noted that human rights bodies have an avowedly adjudicative character, disarmament institutions are charged with verifying compliance, and environmental institutions assume a standard-setting (and development) function. Thus, no general principles can readily be identified, and each institution is to be taken at its own merits, with its powers, functions and personality being determined by its constituent instruments and it its particular context. Whether formally designated an IGO or not, it is the substance of the structure established by its members that has to be considered when determining whether an institution qualifies as an IGO.[589] It is legal personality that serves to distinguish IGO's from so-called 'treaty organs' created by treaties separate from the constituent instrument of the organization.[590] Treaty organs usually have a will of their own but lack legal personality, are more or less loosely embedded in the structure of a pre-existing international IGO and may benefit from that IGO's administrative services. Subsidiary organs of the UN are structures

[588] Bowett's, *supra* note 24, at paras 4-001 to 003.
[589] Akande, *supra* note 25, at 250.
[590] An example is the Conferences of the Parties of Environmental Conventions ('UNFCCC') from the Framework Convention on Climate Change: See Schermers and Blokker, *supra* note 21, at para 44.

within the UN created by UNGA Resolutions. This increases the flexibility of the UN, if not its transparency.

The following research conclusions were reached:[591] UNIDROIT is an IGO in terms of the definition, but UNCOPUOS as a UN Committee not created by treaty is not an IGO. Instead, it can be described as a *subsidiary organ of the UN* as the UN Charter had created the UNGA which in turn created UNCOPUOS as a subsidiary organ on the peaceful uses in outer space. Thus, the founding UN Charter had created the UN with substantive duties, thereby creating the world's only universal IGO, but compliance in space law is ensured by the IGO's organ UNCOPUOS. Possibly UNCOPUOS can also be described as a *treaty organ created in terms of the UN Charter* for reporting purposes to the UNGA, or even as a so-called *'regime'*. Perhaps also, UNCOPUOS may be categorized as *other autonomous organizations.*

The comparison of UNCOPUOS and UNIDROIT indicated that they are of a comparable membership size,[592] yet all member states of UNCOPUOS also serve on the Subcommittees and all compete for UN time and money. The UNIDROIT's Governing Council is much smaller, and consists only of experts, than its General Assembly the political organ of UNIDROIT, which consists of delegates and diplomats from member states. UNCOPUOS works under the UN rules and thus the consensus principle, whilst UNIDROIT has its own written rules and a voting system. The LSC and STSC of UNCOPUOS annually meet for two weeks each and the main UNCOPUOS for ten days, whilst UNIDROIT's Governing Council annually meets for two days, and its General Assembly only for two hours.

UNIDROIT thus has a much more flexible working method, as their elected specialists on the Governing Council do the work or research (and the drafting in Working Groups), and only afterwards the finished product is sent to its General Assembly for the representatives of the member countries to provide political input. The General Assembly serves as the political arm of UNIDROIT and is the only

[591] See Introduction to Research, in particular research and subsidiary questions and IGO definition; Appendix B: Comparison Table UNCOPUOS vs UNIDROIT; own emphasis.
[592] At the time when the instruments researched were created; See Appendix B: Comparison Table UNCOPUOS vs UNIDROIT.

organ in which multilateralism is practiced, but only for two hours annually, instead of the 38 days in UNCOPUOS. The UNIDROIT working method makes it much easier to incorporate industry specialists into drafting groups, and stresses the incorporation of industry plus cooperation agreements with UN Specialized Agencies.[593] The President and the members of the Governing Council, where the legal drafting is done, serve for a renewable term of five years, and consequently there is not only an immense amount of expertise and experience, but also continuity and institutional memory.[594] States consider it prestigious and influential to get a national on the UNIDROIT Governing Council, and elections are intense with reciprocal agreements for support arranged up to a year beforehand.[595] The UNIDROIT Governing Council may in addition invite representatives of international institutions or IGOs to take part in meetings, in a consultative capacity, whenever the work of the Institute deals with subjects which are the concern of those institutions or organisations.[596] Lastly, the Governing Council indirectly influences the Permanent Committee as its five members are appointed by the Governing Council from amongst its own. Governing Council members may be re-elected, allowing for continuity and institutional memory.

After the Moon Agreement, the UNCOPUOS only ever managed step one (creation of resolutions) and no instrument went to step two (draft treaty). Even worse, the SDM Guidelines had to be adopted from another IGO the IADC, and both SDM and SLT Guidelines sidestepped the LSC. In contrast, the Cape Town Approach to treaty-making is so popular that its fourth MAC Protocol successfully proceeded to adoption by the Pretoria Diplomatic Conference in 2019 in Pretoria.[597]

What should be of great concern to space lawyers is that the Artemis Accords appear to be a deliberate attempt to side-line and replace the Moon Agreement, drafted in UNCOPUOS, by establishing rules for the peaceful use of outer space

[593] Such as UNESCO, UNCITRAL and the ITU; Governing Council meetings are experiencing increased cooperation and participation in UNIDROIT projects by FAO and UNCITRAL, see Appendix A: Participation Observation and Appendix B: Comparison Table UNCOPUOS vs UNIDROIT.
[594] UNIDROIT Statute, *supra* note 392, at sub-Article 6(4).
[595] Appendix A: Participation Observation.
[596]UNIDROIT Statute, *supra* note 392, at sub-Article 6(7).
[597] Available at https://www.unidroit.org/history, and https://macprotocol.info/ (last visited 23 May 2020).

and governing behaviour on the surface of the Moon. A golden thread running throughout appear to be the creation of *frameworks*, for example the press reports mention that the Artemis Accords are intended as a framework for best practice in space and on the Moon and cover areas such as the utilization of resources, mining water-ice for drinking water and to make rocket fuel, open data, safe operations, and providing emergency assistance.[598] Surprisingly though, the word 'framework' itself does not appear in the Artemis Accords, yet arguably this concept originated from two soft UNCOPUOS instruments. Firstly, from the LTS Guidelines where Paragraph 6 Scope clarifies that the guidelines are intended to support the development of national and international practices and safety frameworks for conducting outer space activities while allowing for flexibility in adapting such practices and frameworks to specific national circumstances. Section A concentrates on regulatory framework for space activities via Guideline 1: Adopt, revise and amend, as necessary, national regulatory frameworks for outer space activities; Guideline 2: Consider a number of elements when developing, revising or amending, as necessary, national regulatory frameworks for outer space activities; and Guideline 3: Supervise national space activities. Secondly, the Artemis Accords appear to rely on the November 2019 Building Blocks for the Development of an International Framework on Space Resource Activities by the Hague International Space Resources Governance Working Group. Building Block 5 (International responsibility for space resource activities) provides that an international framework should provide that states shall bear international responsibility for national space resource activities whether such activities are carried out by governmental agencies or nongovernmental entities and for ensuring that such activities are carried out in conformity with the international framework, non-governmental space resource activities shall require prior authorization and continuing supervision by the appropriate state, and when space resource activities

[598] See Introduction to Research; Amos, *supra* note 8; to see the extent of European involvement, Amos, *supra* note 197, reported that NASA and ESA are preparing a Memorandum of Understanding on their partnership activities at the Moon, in order to create common standards to adhere to when exploring space together. This would include a 40-tonne lunar space station to be known as the Gateway as a jumping off point for astronauts as they shuttle back and forth to the Moon's surface (consisting of an iHab with room for four astronauts and an Esprit Refueling Module), a lunar logistics vehicle (a robotic freighter to take one-and-a-halve-tonne of cargo to the Moon's surface), and a six-tonne Earth Return Orbiter spacecraft with a 114 square meter solar array to bring rock samples back from Mars.

are carried out by an IGO, responsibility for compliance with the international framework shall be borne by the IGO and by the states participating in such organization. Building Block 11.3 consider:

> '… the principle of non-appropriation under Article II Outer Space Treaty, the international framework should permit state and IGO responsible for space resource activities to establish a safety zone, ... Such safety measure shall not impede the free access, in accordance with international law, …'.

Building Block 12 determines the international framework should provide those states and IGOs shall ensure monitoring of any harmful impacts resulting from space resource activities for which they are responsible.

Not surprisingly, there is nothing in the Artemis Accords regarding Building Block 4.3(b)'s apparent acceptance of the Moon Agreement's CHM principle. Nor Building Blocks 7, 14 and 18 which apparently took guidance from the Space Protocol regarding priority rights and an international registry. Presumably these Building Blocks were deliberately ignored by the drafters of the Artemis Accords, as some of the parties to this pact are persistent objectors to the CHM principle in the UNCOPUOS, plus the main objectors to UNIDROIT's Space Protocol.

3.3 Conditions Governing International Norm-making in Space Law

The history of the five outer space treaties indicated three conditions are required for successful international rule-making, even in technical fields.[599] There must be a felt need for the new rules, in a propitious political climate, and with due representation of the interests involved.

The most telling example of the perceived need requirement is the 1967 Outer Space Treaty. The USSR had proposed a treaty on space law in 1962, but the US at first agreed only to an UNGA resolution, which resulted in UNGA Res. 1962 (XVIII) of 1963 setting out the legal principles in the exploration and use of outer space. The same resolution requested UNCOPUOS to consider 'incorporating in international agreement form, in the future as appropriate' those legal principles'.

[599] Bin Cheng, *supra* note 69, at 688-690; note that Bin Cheng's textbook is criticised by Pronto, 'Some Thoughts on the Making of International Law', *European Journal of International Law Vol. 19 No. 3* (2008), 601-616, but not on these three conditions.

Negotiations for such a treaty went on erratically for several years, and by October 1965 the US was still against a general outer space treaty, yet by September 1966 the US considered a need for such a treaty as more urgent because of man's recent strides towards landing on the Moon. This was a reference to the USSR' first-ever soft landing on the Moon on 3 February 1966 and the following month's placing of the first artificial satellite around the Moon. The USA replicated these achievements on 2 June and 10 August 1966. These lunar satellites were designed specifically to select suitable landing sites on the Moon. With the Gemini project the USA had successfully tested rendezvous techniques, docking and activities outside the space vehicle. It was clear that no further technological barrier stood between man and the Moon, and it was anyone's guess as to whether the USSR or the US would be first. In these circumstances it became vitally important for the two space powers to reach an agreement on the legal principles involved in advance of man's landing on the Moon. President Johnson announced on 7 May 1966 that the USA would seek a treaty through the UN to prevent any nation from claiming sovereignty over the Moon or any other celestial body and that the exploration thereof would be for peaceful purposes only, and transmitted it to the UN on 9 May 1966. Consultations with the USSR began on 11 May, and on 30 May the USSR suggested that the matter be included on the agenda for the forthcoming session of the UNGA. The preliminary negotiations took place in UNCOPUOS, but the controversial issues were dealt with bilateral and direct negotiations between the two major space powers, and agreement between them was announced on 8 December 1966. A 43-power draft resolution 'commending' the treaty to states was submitted to the First Committee on 15 December, and it reached and was adopted the UNGA on 19 December. The Outer Space Treaty entered into force less than a year later on 19 October 1967, indicating that where there is a will a way will be found.

This felt need is also evidenced with the Rescue Agreement. 1967 was the year of the first fatalities in space exploration, resulting in negotiations on the Rescue Agreement to be concluded in record time, and agreement was reached on what would become the 1968 Rescue Agreement.[600]

[600] Three USA astronauts on Apollo I on the launching pad during tests, and Colonel Kamarov in Soyuz I landing; see Bin Cheng, *Ibid.,* at 688-689.

Contrastingly, the negative can also be proven in space law. Non-space powers clamoured almost from the start of the space age for a treaty to determine liability for damage caused by objects launched into outer space and to establish the procedure for recovery. The US was in favour from the beginning, and the UNGA urged UNCOPUOS practically every year to intensify efforts to reach agreement and set deadlines time and time again, which all came to nothing as the USSR considered such a treaty to be superfluous. Thus, it took UNCOPUOS nine years (1962-1971) to produce what later become the LIAB. Moreover, an early settlement on the delimitation of the frontier between national airspace and outer space may have avoided future conflict, but the US was at the time opposed to even discussing this.[601] There was no felt need at the time to resolve this topic, and as a result it unfortunately remains unresolved on the UNCOPUOS agenda.

The propitious climate requirement appeared time and again in space law, in both a negative and positive manner. One of the first major proposals regarding future development of space law came from President Eisenhower, but was stymied by *inter alia* the U2 incident on 1 May 1960. It could only be taken up after a change in administration in the US and in the political climate, which allowed for agreement to be reached on UNGA Res. 1721(XVI) and adopted on 20 December 1961, setting out what Mr Khrushchev stated in a letter to President Kennedy as 'the initial principles of space legislation'. The UNGA Res. 1962 (XVIII) of 13 December 1963 containing the Declaration of Legal Principles was made possible by the agreement reached on 5 August 1963 on the Moscow Partial Test Ban Treaty. The 1967 Outer Space Treaty and the 1968 Rescue Agreement were at the time of their conclusion urgently wanted by both space powers. Agreement on the LIAB was reached in 1971, and both the USSR and the USA publicly acknowledged this was made possible by the favourable political condition that had recently emerged regarding cooperation in space matters between the two space powers. The Moon Agreement languished in UNCOPUOS for seven years, with drafting efforts suddenly blossoming 15 days after the signature of the second Strategic Arms Limitation Treaty ('SALT-II') between the USSR and the USA on 18 June 1979.

[601] Bin Cheng, *Ibid.,* at 690-691, 689 FN 71.

In order to achieve results, there must be due representation of the dominant section of international society in the process of elaborating such rules.[602] This can be illustrated by the creation of UNCOPUOS, which had started life as an *Ad Hoc* 18-Member Committee established by the UNGA on 13 December 1958.[603] The USSR had originally proposed to the US that space matters should be discussed directly between them, and alternatively if the subject was to be studied in the UN it should be done in terms of the troika principle thus in the proportion of 4:4:3 (a committee of 11 consisting of four Western powers, four Soviet-bloc countries and three neutral countries). The US then had an easy majority in the UN and admission to the UN was strictly controlled, and in the 18-Member *Ad Hoc* Committee actually established the proportion was 13:4:2 and not surprisingly the three Soviet-bloc members proceed to boycott the *Ad Hoc* Committee and the neutral members did not attend. In 1959 the UNGA established UNCOPUOS with an enlarged membership of 24, and this time the proportion was 12:7:5. Shortly before this UNGA meeting, the recommendation to form a new ten-member CD consisting of five Warsaw-Pact powers and five North Atlantic Treaty Organization ('NATO') powers, had introduced a new dimension to the world's balance of power. The USSR though remained dissatisfied with the composition and wanted the unanimity rule instead of the usual UN majority rule to be applied in UNCOPUOS so that every member will have the power of veto. As a result, UNCOPUOS transacted no substantive business for nearly two years. This *status quo* was altered by a direct agreement between the USSR and the US that led to the unanimous proposal from UNCOPUOS that later became UNGA Res. 1721 (XVI), which *inter alia* awarded four additional seats on UNCOPUOS to the Soviet bloc and enlarging UNCOPUOS membership to 28 in the proportion of 12:11:5. As part of the same package deal between the USSR and the US, it was announced at the opening session of the now 28-Member UNCOPUOS that the Committee and its Subcommittees would in future operate by consensus without vote. The US had thus conceded to the USSR's second demand for unanimity. Only then did UNCOPUOS really start to function. The test for due representation of the dominant section in the field in question is

[602] Bin Cheng, *Ibid.,* at 691-692.
[603] Bin Cheng, *Ibid.,* at 692-693.

not one of simple military, political or economic powers, but a functional one in relation to the subject-matter.

The LIAB is another example of this concept:[604] Apparently the US had wanted it from the start, but the USSR considered such a treaty to be superfluous. Thus, it took UNCOPUOS nine years to finalise.

All three rubrics discussed were present in UNCOPUOS during the golden age of norm-making in space law. The early drafting of outer space treaties can justifiably be considered as a significant achievement, and international lawyers would be hard pressed to identify other areas of international law where so many major achievements have resulted in so short a time.[605] Nonetheless, it is not quite as simple as that, as space activities tend to develop rapidly and emerging law may become obsolete before it is implemented or prove to be inadequate to regulate technological, economic or political change.[606] Lachs, writing in 1968 at the height of UNCOPUOS's treaty-making capacity, already warned that experience in law-making in outer space play an illustrative and cautionary role for new rules of international law in other new domains.[607] Moreover, with codification much depends on the subject and the aspirations of those involved, and some subjects are more amenable to codification and reformulation after thorough deliberation, whilst others require an essentially political negotiation process from the start.[608] Hence no single process fits all forms of international law-making.

Arguably the three rubrics also explain the fate of the Space Protocol, as it addressed a felt need but the climate was not propitious for its adoption due to the non-representation of the dominant section in satellite industry and space-faring states. Alternatively, the climate was acceptable for adoption but then unfortunately changed. Davies worded it slightly differently in stating that any solution must not only be commercially oriented, but it also has to be politically acceptable.[609]

Possible solutions can now be considered.

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[604] See Bin Cheng, *Ibid.*, at 688-689.
[605] Christol, *supra* note 273, at 846; Christol, *supra* note 188, at 841-844.
[606] Matte, *supra* note 223, at 115.
[607] M. Lachs, *The Law in Outer Space An experience in Contemporary Law-Making* (1968), at V Foreword.
[608] Boyle and Chinking, *supra* note 384, at 166.
[609] Davies, *supra* note 371, at 176.

3.4 UNCOPUOS to be an Independent International Organization?

It is so that contributions from particularly regulatory IGOs to international law have been useful, as IGOs present an often-used platform for the member states to conclude further substantive treaties on the subject matter the IGO is established for.[610] However, in this regard a couple of concerns should be noted. Firstly, it should be emphasised that the competence to impose binding law regarding substantive issues on member states against their individual opposition are usually absent with IGOs, and most do have extended competence to adopt guidelines, recommendations, rules of the road and other non-formally binding text. Many of these after adoption gradually transform into customary international law as the members start to appreciate their legal relevance and authority within the context of IGO-based cooperation. Internal binding regulations are usually confined to procedural and organizational rather than substantive matters but may develop their own momentum and impact and sometimes have an effect upon the creation of binding international law. Moreover, most possess some dispute settlement system comprising of mixed forms of judicial and non-judicial mechanisms, which utilize general public international law in the context of solution of a dispute and in doing so may contribute to further interpretation and understanding. Secondly, their precise legal status will thus depend on the organizations involved, the basis on which the standards are adopted, and the form of the instrument.[611] No IGO is in any sense independent of their members, as all are controlled by and answerable to the Governments constituting their decision-making bodies, and thus may undertake law-making only if their members so decide.

Interestingly, the option of creating an IGO was considered right at the start of the UN space law making process, but at that stage the *Ad Hoc* Committee believed that it would not be appropriate to establish an autonomous IGO for international co-operation in outer space, or to ask an existing autonomous IGO to undertake over-all responsibility in outer space.[612] Gaspari and Olivia judged it now necessary

[610] von der Dunk, *supra* note 286, at 272-274.
[611] Boyle and Chinkin, *supra* note 384, at 125.
[612] A/4141, *supra* note 78, at Part III, as discussed by Jasentuliyana, *supra* note 261, at para 16.

to create an IGO specifically devoted to outer space.[613] The element that would mark the difference would be that not only states but also private companies, national and regional space agencies like the European Space Agencies, and other IGOs for instance the EU, should have a voice. Such an approach would also address the growing involvement of the private sector in outer space activities.

Regimes, in particular, can be developed into an IGO.[614] Should UNCOPUOS be considered as such, there does not appear to be any major obstacles in its way.

Should such an IGO era dawn for UNCOPUOS, arguably the UNCOPUOS decision-making process of consensus should be replaced with the UNIDROIT majority decision making.

Unfortunately, it is not clear why the *Ad Hoc* Committee concluded that there is no need for an IGO, but it is not 1959 anymore, and that decision could be re-examined. Sadly though, the initial strong and prevailing motivation for international cooperation in UNCOPUOS has run its course and has been replaced by political expediency. It is thus hard to imagine that consensus in UNCOPUOS hereon could be reached, or for that matter an international instrument drafted to effect such.

3.5 Utilize UNIDROIT for Space Norms?

Before considering such a drastic step, it should be determined whether the Space Protocol can be regarded as the sixth outer space treaty?

The Space Protocol was intended to address certain practical issues.[615] Firstly, prior to the launch rights in physical space assets are accessible, but after launch they will be in outer space, and thus not subject to the sovereignty of any state, and not ordinarily accessible to bailiffs. This is problematic for those financing the acquisition or use of such and the end result of these risks for creditors is that prospective buyers or lessees either cannot secure the necessary finance or have to

[613] Gaspari and Olivia, 'The Consolidation of the Five UN Space Treaties into One Comprehensive and Modernised Law of Outer Space Convention: Towards a Global Space Organization', in G. Kyrakopoulos and M. Manoli (eds.), *The Space Treaties at Crossroads Consideration de Lege Ferenda* (2019), at 195.
[614] Ruffert and Walters, *supra* note 27, at Introduction; note authors emphasised such a process does not necessarily have to take place.
[615] Lyall and Larsen, *supra* note 36, at 393.

pay significantly more for it.[616] Secondly, unlike other movable assets such as ships and airplanes, spacecraft do not have any nationality.[617] Space object identification is complex. Articles II and IV of the REG provide for two separate registrations, both mandatory, of every space object 'launched into earth orbit and beyond'. Thus registration takes place in a national registry (but only one even when there are several launching states and the contents are left to each state concerned and thus it may or may not be useful for identifying the objects recorded), and in the UN Registry to whom each state of registry must furnish specific items of information concerning each object carried on its registry (but only 'as soon as practicable'). The regulation of private commercial activities in outer space has been left almost entirely to public international law treaties and to national law. Outer space commerce is still at an early stage of development and state support remains essential, for example the private operators' requirement for limited liability in outer space as they cannot buy unlimited liability insurance at affordable rates.

By 2004 the emerging consensus was that the Draft Space Protocol will be an international law instrument regarding private law matter.[618]

UNIDROIT was reportedly determined to make the Space Protocol duly responsive to the essential needs and requirements of business practice, while at the same time being in line with the UN treaties and principles on outer space.[619] During the negotiating process there was concern that this new international regime could hamper the compliance by states of obligations under pre-existing international instruments and/or national peremptory prescriptions.[620] The major concern was the transfers of ownership of space assets that the Space Protocol, once in force, would allow and their consequences on pre-existing obligations, both international and national. From the very first discussions that initiated the Space Protocol it was assumed that public law would prevail over private law: Thus, the Outer Space Treaty will prevail over the Space Protocol.[621] The Space Protocol specifically does

[616] Goode, *supra* note 366, at 525.
[617] Lyall and Larsen, *supra* note 36, at 393; Relying on an argument by Bin Cheng, *supra* note 69, at 159.
[618] Gabrynowicz, *supra* note 243, at 1062.
[619] Stanford, *supra* note 405, at 123.
[620] Marchisio, *supra* note 377, at 186; this author was the chair of the five session UNIDROIT Committee of Governmental Experts entrusted to negotiate the Space Protocol, and of the Committee of the Whole of the 2012 Berlin Diplomatic Conference which adopted the draft and opened it for signature.
[621] Art XXVI the Space Protocol; Lyall and Larsen, *supra* note 36, at 403.

not disturb the contracting states' authority over launches and operation of space assets, nor state regulation or title transfers,[622] does not affect use of orbital slots or radio frequencies nor states' control of command codes, and furthermore does not require contracting states to recognize application of the Space Protocol when such would result in conflicts with export or national security regulations.

It would be easy to conclude that the Space Protocol is not space law as traditionally understood and defined. Yet, Sundahl in the year after the 2012 Berlin Diplomatic Convention, had no doubt that the Cape Town Convention and the Space Protocol 'are the first new treaties in the field of space law since the Moon Agreement was concluded in 1979'.[623] Sundahl qualified this bold statement, however, by stating that the Cape Town Convention 'ushered in a new era of international space law as the first international treaty that addresses private law' or the rights and obligations of parties engaged in business transactions. This can be understood by the fact that Sundahl defined the law of outer space as taking form on multiple levels namely international, regional and domestic, and in turn classified the international law of outer space as existing of multilateral and bilateral treaties, and customary international law. Earlier international space law applies to commercial space activities in certain respects, but the rights and obligations apply only to states, for example a state has a duty to supervise the commercial space activities of its nationals, and to return to the Launching State errant spacecraft that has crashed in their territory. A private company though has no standing under international law to demand the return of its errant spacecraft; contrastingly under the Cape Town Convention a bank with an international interest in the form of a security interest in a satellite has a right to exercise remedies under the Cape Town Convention if the debtor defaults on its payment obligations, as a state that is party to the Cape Town Convention is required to enforce the bank's rights to exercise these remedies. Also, the Cape Town Convention differs from earlier outer space treaties in the nature of the concerns that motivated its creation, namely private transactions rather than governmental interests. Thus, rather than concerns over sovereignty claims and militarization, the Cape Town Convention addressed the needs of private financiers,

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[622] Larsen, *supra* note 380, at 197.
[623] Sundahl, *supra* note 5, at 123-127.

for example the priority of secured parties, title to purchased assets, and remedies upon default. Schrogl would in 2014 describe UNIDROIT as the remarkable institution which has negotiated a binding international space-law related agreement (which has, however, not yet entered into force).[624] Gaspari and Olivia saw the Space Protocol as an instrument via UNCOPUOS, and which has the role of shaping and enhancing space law. It aimed to facilitate the implementation of outer space rules and to clarify their interpretation.[625] Recently Hobe concluded that UNIDROIT has made an important contribution to international space law as its Space Protocol serves the purpose of providing asset-based financing for the space industry which is an important contribution to the development of the international space law and in facilitating space activities.[626] Hobe also deemed it remarkable that neither the Cape Town Convention nor its Space Protocol were drafted through UN organs such as UNCOPUOS or the ILC.

The assertions by the authors above that the Space Protocol forms part of the international law of outer space, can arguably only fly if one **accepts a fourth stage of development as part of a redefining of space law *sensu lato.*** By focusing on the role of UNCOPUOS as the main platform for agreeing on space law developments, three phases in the development of space law were distinguished.[627] These align with periods when outer space activities were purely state-driven, when governments and private industry started cooperating, and finally when industry took the lead.

In the *public international law* phase space activities were purely governmental, outer space development was seen in terms of a Cold War balance of power and as national competition, and space law was shaped via international law-making machinery.[628] This phase can be sub-divided. First an *internal administrative era*

[624] Schrogl, *supra* note 248, at 101.
[625] Gaspari and Olivia, *supra* note 613, at 194.
[626] Hobe, *supra* note 6, at 188 and 67.
[627] Smith, supra note 56, at 46-47; for more historical context see CoCoSL I, *supra* note 61, at Chapter II; Weeks, *supra* note 7; note some authors referred to it as 'epochs'.
[628] Weeks, *Ibid.,* at 7-9, 20; von der Dunk, *supra* note 29, at 38.

(1957-1963),[629] consisting of non-legally binding UNGA Resolutions,[630] but with considerable political and moral force.[631] UNGA Res. 1348 (XIII), 18 December 1958, recognized the need for international co-operation and for conventions establishing the common interest of mankind in outer space that could be used for peaceful purposes only. UNCOPUOS was installed via UNGA Res. 1472 (XIV), 12 December 1959. UNGA Res. 1721 A and B (XVI), 20 December 1961, determined the exploration and use of outer space should be only for the betterment of mankind and to the benefit of states irrespective of the stage of their economic or scientific development, that international law including the UN Charter applies to outer space and celestial bodies, and outer space and celestial bodies are free for exploration and use by all states in conformity of international law and are not subject to national appropriation. These led directly to the 1963 UNGA Res. 1962 (XVIII), 13 December 1963, containing 11 fundamental principles forming the bedrock of international space law.[632] The 1963 Declaration is arguably customary international law that can exert significant force in governing the activities of states in outer space.[633] Thus, the approach taken by states were to first establish a *corpus* of general non-binding principles, and then secondly to incorporate such into *binding treaty* (1967-1979).[634] The five outer space multilateral treaties were all negotiated within the UNCOPUOS in just over a decade. Towards the end of the 1960's the time appeared mature for entering into legally binding instruments aimed at clarifying and progressively developing the rules applicable to outer space activities. This most successful phase of space law-making,[635] was described as the 'golden age of space law treaty-making'.[636] The five core outer space treaties

[629] F. Tronchetti, *Fundamentals of Space Law and Policy* (2013), at 5 refers to this as the 'preparatory stage'; UNGA Resolutions regarding space law are in two groups, those before and after the 1967 OST according to Lyall and Larsen, *supra* note 36, at 42.
[630] In general see von der Dunk , 'A Qualified Plead for a Role of 'Soft Law' in the Context of Space Activities", in I. Marboe (ed.) *Soft Law in Outer Space: The Function of Non-binding Norms in International Space Law* (2012), 31-56, at 31-56.
[631] UNGA Res. 1962 (XVIII), 13 December 1963: The Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space (preceded by UNGA Res. 1721 A and B (XVI), *supra* note 67); I. Diederiks-Verschoor and V. Kopal, *An Introduction to Space Law* (2008), at 2-3.
[632] UNGA Res. 1962 (XVIII), *Ibid.*; Diederiks-Verschoor and Kopal, *Ibid.*, at 2-3.
[633] Sundahl, *supra* note 5, at 128-129.
[634] Tronchetti, *supra* note 629, at 5; See also Jankowitsch, *supra* note 249, at 1-28.
[635] In general see Hobe, *supra* note 290, at 869-882; von der Dunk, *supra* note 630, at 31-56.
[636] von der Dunk, *supra* note 29, at 39-41.

codified, elaborated upon, and expanded on the principles contained in the 1963 Declaration. The Outer Space Treaty, the *magna carta* for outer space activities and the cornerstone treaty for later space law treaties and sets of principles,[637] was essentially elaborated on by the next four: Articles V and VIII into the ARRA, Article VII into the LIAB, Articles V and VIII into the REG, and the 1979 Moon Agreement with respect to celestial bodies (as opposed to the vacuum void around them). UNCOPUOS then became embroiled in extended discussion regarding the Moon's claimed status as CHM and the consequences thereof for prospective mineral exploitation. The result was that no major spacefaring nation ultimately ratified.[638] Partly due to the expanding range of states becoming interested in spaceflight and joining UNCOPUOS, it was surmised that the period in which more or less global agreement on binding international space law instruments was now over, with the fate of the Moon Agreement considered ultimate proof.

The second phase involves *soft law*. Not one multilateral international agreement was successfully negotiated and concluded during this period.[639] An alternative form to legally regulate pressing problems relating to the use of outer space had to be found, which led to a significant softening of international space law in the sense of less binding legal commitments. In this phase UNCOPUOS largely aimed at further developing international space law by means again of essentially non-legally binding UN Resolutions, hoping that through practice and experience major parts of it would become customary international law.[640] The adoption of declarations of Principles by UNGA was chosen as the optimal solution to further develop space law. Principles adopted by the UNGA are on Direct Television

[637] CoCoSL I*, supra* note 61, at para 50 Historical Background; CoCoSL II, *supra* note 153, at para 9 ARRA Historical Background and Context, para 14 LIAB Historical Background and Context, para 9 REG Context; paras 49-150 MOON Article 1 (Scope of Application).
[638] Note there were 16 ratifications when von der Dunk wrote Chapter 2 in F. von der Dunk and F. Tronchetti (eds.), *Handbook of Space Law* (2015), 29-126; updated from A/AC.105/C.2/2019/CRP.3*, *supra* note 114.
[639] Hobe, *supra* note 290, at 875-876.
[640] von der Dunk, *supra* note 630, at 41-43.

Broadcasting ('DBS'),[641] Remote Sensing,[642] Nuclear Power Sources ('NPS'),[643] and Needs of Developing Countries.[644]

There was also a drastic increase in US domestic law-making and policies, which triggered an increase in space commercialization and participation by private corporations.[645] Space law-making shifted from the international to the domestic arena. Around 1980 the Reagan era ushered in profound changes with increased privatization and commercialization. Space became perceived as a new marketplace, wherein new products and services could be produced at a lower cost and more efficiently by private industry rather than by the government. A common pattern was joint cooperation between business entities and Governments to pool resources and cut costs. Thus, new actors and new activities became involved in outer space development.

Since the middle of 20th century there is a non-ending discussion in international law in general, and in the space law arena in particular, on the definition of soft law in contrast to hard or black-letter law.[646] Soft law, as opposed to hard law which makes up international law proper, is a body of standards, commitments, joint statements, or declarations of policy or intention, and resolutions adopted by the UNGA or other multilateral bodies.[647] IGOs create or promote soft law. From a law-making perspective, 'soft law' is simply a convenient description for a variety of non-legally binding instruments used in contemporary international relations by states and IGOs.[648] The most important distinction under international law is that the violation of a hard law obligation represents an internationally wrongful act which entails state responsibility, while the violation of soft law does not.[649] Thus,

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[641] UNGA Res. 37/92, *supra* note 107.
[642] UNGA Res. 41/65 Principles Relating to Remote Sensing of the Earth From Outer Space, 3 December 1986.
[643] UNGA Res. 47/68, *supra* note 150.
[644] UNGA Res. 51/122 Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interests of All States, Taking into Particular Account the Needs of Developing Countries, 13 December 1996.
[645] Weeks, *supra* note 7, at 20.
[646] Hafner, 'The Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States', in I. Marboe (ed.) *Soft Law in Outer Space: The Function of Non-binding Norms in International Space Law* (2012), 267-288, at 282.
[647] Cassese, *supra* note 2, at 196-197.
[648] Evans, *supra* note 2, at 118.
[649] Marboe, *supra* note 214, at 119-121; note author relied on the Articles of the ILC on the Responsibility of States for Internationally Wrongful Acts of 2001.

soft law is an antonym of hard law.[650] Hard law is binding and enforceable, its development follows specific formal rules, cannot be amended easily, is binding so long as it is not repealed, and violations can be filed at court and can result in legal sanctions. Soft law are regulations which intend to steer human behaviour and conduct, but can be changed more easily, cannot be filed at court and not result in specifically legally defined sanctions, are non-binding, their content is dependent on compliance rather than enforcement, and are usually not adopted under strict and formal rules. Some refused to utilise 'soft law' as it is imprecise. Either a normative instrument is binding, then it is law, or it is not binding thus the law of the excluded middle according to which a statement is either true or false and there is no third option.[651] Hobe saw the development of increasingly avoiding binding commitments as being inclined to arrive at 'softer' solutions. This period lasted until the middle 1990's.[652]

The UNIDROIT Space Protocol originated in the last years of the UNCOPUOS soft law period, and contains legally binding commitments for these new actors and a more solid base for asset-based financing of space infrastructure.[653]

The third phase in space law development is characterized by *the assessment or review of the existing outer space legal regime* to discern its shortcomings, suggesting possible ways forward, and resulting in the formulation of non-binding documents based upon the rights and obligations provided for in the outer space treaties.[654] The LSC undertook efforts to broaden the acceptance of the UN space treaties and to evaluate their implementation. From 1996 Resolutions were adopted that interpreted binding international law.[655] UNGA Res. 51/122 of 13 December 1996 dealt with the interpretation of Article 1 Para 1 of the Outer Space Treaty on how to distribute benefits derived from space activities. It reiterated the freedom of

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[650] Brünner and Königsberger, 'Regulatory Impact Assessment – A Tool to Strengthen Soft Law Regulation', in I. Marboe (ed.) *Soft Law in Outer Space: The Function of Non-binding Norms in International Space Law* (2012), 87-98, at 88.
[651] Hobe, *supra* note 6, at 47 and FN29 at 27; note in terms of the dictum *tertium non datur.*
[652] Tronchetti, *supra* note 629, at 5-7.
[653] Hobe, *supra* note 290, at 876; presumably once it enters into force.
[654] Tronchetti, *supra* note 629, at 18-19.
[655] CoCoSL I, *supra* note 629, at para 52 Historical Background; Declaration on International Co-operation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries; Application of the Concept of "Launching States"; Recommendation on Enhancing the Practice of States in International Intergovernmental Organisations in Registering Space Objects'.

states to determine which states would like to cooperate with whom and how they would distribute the benefits and results gained by their own space activities. UNGA Res. 59/115 of 10 December 2004 where the concept of 'Launching State' as contained in the REG and LIAB was interpreted, in order to make the concept more powerful; UNGA Res. 62/101 of 17 December 2007 Recommendations on enhancing the practice of States and international intergovernmental organisations in registering space objects, became necessary because states parties had ignored one of the major obligations of international space law, to register each of their objects launched into outer space in national and international registers. These resolutions were not meant to be authoritative interpretations or proposed amendments to the LIAB or REG, but merely suggested certain practices to ensure a coherent application of these conventions.[656] Other law-creating UN Documents were the SDM Guidelines,[657] Safety framework for NPS,[658] and the LTS Guidelines.

The SDM Guidelines is seen as proof of the 'softening' of international space law. A clear development from hard international law towards non-binding international UNGA Resolutions for specific uses of outer space, plus 'unofficial' negotiation fora that bypass the UN and UNCOPUOS such as the IADC, the Committee on Earth Observation Satellites ('CEOS'), the International Committee on Global Navigations Satellite Systems ('ICG'), the Global Exploration Strategy ('GES'),[659] and the ISO development of international standards on the basis of the work of the IADC.[660] Thus, a serious problem like environmental protection of outer space, and the possible consequences of accidents caused by space debris was tackled on an interagency basis with the explicit requirement of being not legally binding on states.[661] The old consensus, where the main superpowers made the law within the UN with a view to securing broad support for an international legal order for space activities, was being challenged. Non-binding agreements are sought to give the main space powers maximum leeway in their space activities.

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[656] Tronchetti, *supra* note 629, at 19.
[657] ST/SPACE/49, *supra* note 32.
[658] Endorsed by UNCOPUOS 52nd Session Doc. A/AC.105/934 Annex Safety Framework for Nuclear Power Sources Application in Outer Space.
[659] CoCoSL I, *supra* note 61, at para 56 Future Perspectives; Hobe, *supra* note 290, at 878.
[660] Viikari, *supra* note 207, at 741.
[661] Hobe, *supra* note 290, at 878.

Von der Dunk persuasively argued that a *fourth phase* should be discerned, namely the redefining of space law *lato sensu*. This would not necessarily be distinguishable in time from the others but providing a more fundamental paradigm change and closely related to the changing role of UNCOPUOS over the last decades in terms of law-making and codification.[662] Essentially it involved moving beyond the core of the *corpus* of international space law generally recognized, substantially changing its remit, and occasionally even threatening its relevance. Thus, where space activities move beyond their pure Cold-War-era, government-focused, politico-military and scientific origins, and taking space law with them. Space law is starting to encompass more focused regimes on specific ventures or sectors, and to broaden even further as a consequence of increasing practical applications of a terrestrial nature. The result was an overall lessening of the coherence of all international law relevant to space, and thus space law of today should for comprehensiveness' sake not just refer to those global treaties, resolutions and other legal, para-legal, or soft-law developments which originated from the bosom of UNCOPUOS; or more precisely from the cooperation between most of the major spacefaring states in that context. The first part of this process started in the late 1960's, but this fourth phase has in recent decades slowly yet visibly outgrown the processes and results of the third phase, at least in terms of practical relevance. This is the origin of the increasing debate on the viability of UNCOPUOS as the central platform for developing international space law.

The first three phases had in common that states were the dominant, often exclusive, actors in outer space, and that the space law regime developed by them established globally applicable rules, whether legally binding treaties or via UN Resolutions giving rise to customary international law.[663] In contrast the fourth phase was ushered in with the advent of a few IGOs of an operational character established as early as the 1970's and pooling quasi-regulatory resources and especially financial and technical resources. This was broadened with the involvement of private entities interested in the potential commercial benefits.

[662] von der Dunk, *supra* note 29, at 106, 29.
[663] von der Dunk, *Ibid*., at 107.

Should von der Dunk's redefinition be accepted, possibly the Space Protocol still has to be differentiated from traditionally understood space law as advanced by Lyall and Larsen, which originally had described the Space Protocol as the first private international law treaty relating to outer space activities.[664] Later, when investigating the relationship between the Space Protocol and UN outer space treaties, they amended this statement slightly to describe the Space Protocol as the first multilateral private international law treaty relating to outer space activities.[665] Zheng advanced that it is more acceptable to describe the Space Protocol as the first international space law treaty created for unifying private law related to space equipment financing.[666] Arguably, this may work, by accepting the redefining of space law *lato sensu* and the resultant new regimes, including the Space Protocol, being included. Possibly the Space Protocol may also be referred to as a relevant multilateral private international treaty forming part of the law of outer space, so long as the following warnings are observed. First, the Space Protocol as delimited by the Outer Space Treaty can function within its limits, just as financing arrangements not falling within the scope of the Space Protocol currently function within the constraints of the outer space treaties. Secondly, the Cape Town regime only creates an optional private international law regime to facilitate a method through which securities over space assets can be recognized and internationally enforced.

Accepting von der Dunk's radical analysis of the phases of the development of space law to define space law *lato sensu* also provides an explanation for the role of UNIDROIT in modern international space law legislation and the Space Protocol with a proper classification in an international space law regime. This new definition of space law is wide enough to cover work done in space law by even ESA and the EU. Notably von der Dunk did not allege that the UNCOPUOS can no longer make treaties, but merely that its so-called golden age of treaty-making had passed. His broadening of the space law definition *lato sensu* provides a Realpolitik solution to a continuing role in the outer space legislation process for UNCOPUOS; and one which can be described as simple and elegant, and simply

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[664] Lyall and Larsen, *supra* note 36, at 361-362.
[665] Lyall and Larsen, *Ibid.*, at 392.
[666] Zheng, *supra* note 535, at p 11: Lyall and Larsen, *Ibid.,* at 390, 392, 406.

elegant. That space law and contracts are exposed to various influences extending beyond public international space law to include private and international private aspects of the law, may not signify anything more than the interdependencies between the various disciplines of the law where different actors are involved, and it should not be taken to imply a fragmentation of international space law, but merely as the interaction between the international and the domestic level.[667]

It should thus come as no surprise that von der Dunk categorized UNIDROIT is a regulatory IGO which recently became involved in space activities and space law.[668] To him, UNIDROIT's focus on private international law which undertakes efforts to harmonize and/or streamline national legal regimes involved in the space sector, constitutes another illustration of the growing measure of privatization and commercialization even though confined to the special realm of space project financing.

Can UNIDROIT fulfil UNCOPUOS' space law-making task? UNIDROIT's actions concerned some.[669] The Space Protocol was seen as proof of the perceived natural tendency of new IGO entrants into the field of space law to extend their prospective regulatory and legislative activities beyond the original point of departure in order to preserve the effectiveness of their original contribution stemming from their inherent institutional focus. Moreover, there was a fear that the inevitable coherence of private space activities and the particular legal regimes applicable to them and international public international space, might cause the Space Protocol to somehow interfere with the UN space treaties negatively regarding rights of holders of security interests in satellites versus the Liability Convention regime. Also, UNIDROIT efforts to address the complex issue of liability for GNSS signals and services should rather have emanated from the public international realm due to the participation of key sovereign players. These efforts of UNIDROIT were predicted to fail as it interferes in the public international realm and issues of safety, security, and general economic purposes.

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[667] Smith, *supra* note 56, at 55.
[668] von der Dunk, *supra* note 286, at 280-281.
[669] von der Dunk , *Ibid.*, at 281 and FN 45; his argument was based on the definitional issues of 'space assets' vis-à-vis 'space objects'.

Several authors vigorously defended the Space Protocol from the allegation of negatively influencing the five outer space treaties.[670] Larsen, who had worked on the early aerospace group, took what he termed the 'outside view' regarding the point of Space Protocol's compatibility with existing space law.[671] According to him Goode took the 'inside view' from the commercial law point of view, and in his *Official Commentary* described how the parties can contract within those limitations. Larsen considered these views as compatible by keeping in mind the basic principle that public law always supersedes private law. Thus, it will be the space lawyers' role to advise their clients of the Space Protocol's limitations and its operations.

Conceivably UNIDROIT's preparatory work had adequately addressed concerns regarding this IGO entering the public international law realm, plus UNIDROIT has done an excellent job in ensuring that its Space Protocol, which is in essence a debt-collection treaty, fits with existing outer space treaties. In any event, UNIDROIT is now playing an increasing role in space law initiatives, as its Deputy Secretary-General was a member of the HWG which prepared the influential Building Blocks,[672] and it has become a Permanent Observer in UNCOPUOS.

Regrettably, even though UNIDROIT's Space Protocol was the catalyst for undertaking this research, UNIDROIT to make outer space law norms in general is not a feasible option. UNIDROIT as a private law IGO does not primarily concentrate on outer space issues, and is unsuitable as a permanent vehicle for outer space legislation. In any event, UNIDROIT's space law making endeavours were not met with conspicuous success: Its Space Protocol may still fail due to big satellite operators' continuing opposition, and the EUC dragging its feet on the GNSS project also did not assist UNIDROIT's liability project.[673]

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[670] Stanford, *supra* note 375 (2012 Symposium), at 3; repeated in Stanford, 'The UNIDROIT Protocol to the Cape Town Convention on Matters Specific to Space Assets', *Paper delivered at the 63rd International Astronautical Congress, Naples, 1/5 Oct 2012 (55th IISL Colloquium on the Law of Outer Space: Session 2 – the interactions between international private law and space law and its impact on commercial space activities)*, Copy provided by MJ. Stanford, Immediate Past Deputy Secretary-General UNIDROIT) ('Stanford (2012 IISL)'); Sundahl, *supra* note 5, at Chapter II in general, and specifically 119-120, and 123.

[671] Larsen, *supra* note 199 (2012), at 206.

[672] Bittencourt Neto, *supra* note 380, at 118 Appendix 1.

[673] See Appendix A: Participation Observation.

3.6 Reorganize the UNCOPUOS Working Methodology?

It is in particular the LSC working method that deserves addressing since any draft treaty on outer space issues is supposed to originate in the LSC. Its agenda is problematic, as it has been described as neither reactive nor dynamic.[674] The current agenda structure and working mechanisms were adopted in 1999 and were only elaborated on then under pressure of serious inactivity which almost led to an implosion of the LSC due to the strong resistance of the member states to put new items on the agenda. This was achieved, in particular, through the establishment of work plans and a more flexible way of having single issues/items for discussion. Since then, workplans with associated working groups under specified duration as well as single issue items with limited duration have provided a more lively and productive setting. This reorganisation has reached its limits by 2014 with no urgent and relevant issues of space law identified for workplans, increased bypassing of the LSC, and new flexible mechanisms introduced such as the LTS working group and its expert groups set-up outside the LSC. The existing agenda structure and working mechanisms of the LSC needs examination, and even more so member states should debate what they expect from this forum and how they see its role.

Probably a more drastic proposal for traditionalists in UNCOPUOS is the suggestion by *Nature* magazine that commercial perspectives should be included through national delegations and external observers.[675] This can be traced back to its somewhat aspirational understanding of UNCOPUOS working methods as mainly happening through two subsidiary bodies, with UNCOPUOS working groups start meeting in January to continue developing best practices for protecting the space environment with new proposals to be presented to the Committee in June. However, this suggestion cannot be ignored as it hails from an influential publication read by opinion-makers and delegates to UNCOPUOS meetings, and appears to be a serious attempt to propose that UNCOPUOS should (just like the ITU) allow technical proposals plus direct commercial perspective input.

[674] Schrogl, *supra* note 248, at 102; A/AC.105/C.2/L.293/Rev.1, *supra* note 341, at para 4.
[675] Johnson-Freese 'Build on the Outer Space Treaty', *Nature*, *Vol 550* (12 October 2017), 182-184, at 184.

According to the ESPI the organizational lessons to be learnt from UNIDROIT's Cape Town Process are first its crucial ability to involve experts from industry and other stakeholders to draft the particularly detailed provisions of the protocols, and secondly in allowing industry to play a vital role when it comes to pressing governments to ratify a treaty.[676] Notably ESPI does not even mention the possibility of UNCOPUOS treaty-making. The counterargument is that space law not only envisaged but is mature enough to deal with NewSpace.[677] Still, *Nature* is correct, and it is time for industry to be allowed to take a more active role in UNCOPUOUS activities in particular through working group participation.

UNCOPUOS as a forum for the discussion of space governance issues has been described as extremely limited and specifically in its ability to implement collective-choice arrangements.[678] Thus, consensus decision-making may have to be reconsidered. The argument goes that the Cape Town approach has the great advantage that the umbrella convention can contain general norms applicable across the board, leaving detailed regulation pertinent to a specific sector to protocols.[679] By this, a degree of communality is achieved, which might be helpful in various ways, including consensus finding, whilst freedom is given to take proper account of sector specific issues. It should be noted that in treaty law the act of adoption of a treaty does not amount to consent to be bound. Instead, it is a reference to Article 9 VCLT the adoption of the text of a treaty. Article 9(2) VCLT requires the vote of two-thirds of the states, present and voting and excluding abstentions, at the international (diplomatic) conference organised to adopt the treaty for example the 2012 Berlin Diplomatic Conference for the Space Protocol. Drafts of UNCOPUOS instruments are burdened by the consensus rule during its whole process from the Subcommittee to the UNGA. Bearing in mind that the DBS Principles, the one instance where voting and not consensus was utilised in negotiating space law, is not considered to be successful or legally binding,[680] calls for consensus decision-making in the UN to be replaced should be supported in line with the assertion by

[676] Pecujlic, *supra* note 292, at 148.
[677] Smith, *supra* note 56, at 45-46.
[678] Johnson-Freese and Weeden, *supra* note 320, at 77.
[679] Pecujlic, *supra* note 292, at 148.
[680] CoCoSL III, *supra* note 153, at paras 1 and 210-212 DBS Principles.

Schermers and Blokker in the context of IGOs in general of the principal advantage of majority voting as the increased chance that decisions will be adopted.[681] The recommendation is that the ability to have a majority vote, should there not be consensus, is to be legally entrenched in a set of formal rules of procedure.

Not surprisingly, there are authors making strong arguments for the retention of the consensus-based UN decision-making system, and providing suggestions as to how the consensus system is to be used.[682] Resorting to voting in a multipolar international community is considered a risky strategy as no state relishes being placed in the position of having to vote against a new development in the law. Consensus adoption procedure is accordingly key to the successfully functioning of the contemporary international law-making process. Although rarely, in the UN system votes are sometimes taken at the final stage of the adoption of a treaty, and at interim stages of the negotiating process for example voting to ascertain the inclination of the room. The use of outer space as an international global common means that states must do more than just insist on their sovereignty.[683] The consensus-based mechanism of international space law that grants more or less the right of a veto to all members of UNCOPUOS should be considered more in the sense of an enlightened sovereignty so that for the preservation of outer space as a common and global good, compromises are necessary and binding commitments must be made in order for all countries to be able to contribute and receive benefits proportionally to their economic and technological strength.

In the end though, any decision to change the decision-making method on text negotiations, will obviously require consensus in UNCOPUOS and that simply cannot be expected to ever realise. No wonder then that consensus has been described quite derogatively as a state of non-objection, a resigned let-it-go.[684]

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[681] Schermers and Blokker, *supra* note 21, at para 839.
[682] Pronto, *supra* note 599, at 607-609.
[683] Hobe, *supra* note 6, at 211-212; and relying on Chayes Abram/Hader, Chayes, Antionoa, *The New Sovereignty* (1995) which was unfortunately unavailable.
[684] Pescatore, 'The GATT Dispute Settlement Mechanism: Its Present Situation and Its Prospects', *JWT* (1993/2), 5-20, at 13.

In sharp contrast to UNIDROIT, UNCOPUOS was not provided with formal rules of procedure at its creation.[685] Thus, delegates tend to look for guidance on procedure to those delegation members that have been attending UNCOPUOS session for a long time but unfortunately, they are either retiring or passing on.[686]

At its 58th session held in June 2015 the UNCOPUOS requested the Secretariat to make available for the sessions of the Committee and its Subcommittees, in 2016, a compendium containing the rules, procedures and practices, including the processing of documentation, of the Committee and its subsidiary bodies.[687] The Secretariat produced in time for the 55th LSC an extremely useful document summarizing the rules of procedure and methods of work of the UNCOPUOS and its subsidiary bodies.[688] As background the Secretariat explained that UNGA in the founding and subsequent Resolutions related to the work of the UNCOPUOS did not provide for Committee rules of procedure. Neither has it made any request or recommendation to the Committee to adopt its specific rules of procedure. As a result, the Committee has not adopted any formal set of its own rules of procedure, and instead has taken decisions on its procedures as needed and has applied the Rules of Procedure of the UNGA with flexibility. Throughout the years, the Committee and its Subcommittees reiterated that a flexible and inclusive approach to the conduct of business greatly facilitated their work, whilst allowing to take into due consideration various views and opinions of member states.[689] A legal opinion of the Office of Legal Affairs determined that an UNGA subsidiary organ is a master of its own procedures and free to depart from the Rules of Procedure of the UNGA under Rule 16, and the standard practice of UN bodies is that each may interpret the rules of procedure applicable to it, to the extent such interpretation does not constitute an amendment or suspension of the rules, which may only be

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[685] Ironically, UNCOPUOS demands copies of constitutive instruments plus rules of procedure from the SKAO and other IGOs for observership applications; See A/AC.105/C.2/2021/CRP.15, Request for observer status with the United Nations Committee on the Peaceful Uses of Outer Space: application of the Square Kilometre Array Observatory , 27 May 2021; see Appendix A: Participation Observation, and Introduction to Research.
[686] See Appendix A: Participation Observation.
[687] A/70/20, *supra* note 353, at para 359.
[688] A/AC.105/C.2/2016/CRP.5, 29 March 2016, Compendium on rules of procedure and methods of work related to the United Nations Committee on the Peaceful Uses of Outer Space and its subsidiary bodies ('Compendium RoP').
[689] Compendium RoP, *Ibid.,* at paras 2, 3 and FN 7, 4 Background Information.

done pursuant to relevant rules. The Secretariat then proceeded to provide guidelines on the rules of procedure and methods of work of UNCOPUOS and its subsidiary bodies. Unfortunately a full discussion of this fascinating development falls outside the research questions, but in short it deals with the agenda of the UNCOPUOS and its Subcommittees,[690] retains the consensus method for decision-making,[691] sets the pattern of meetings[692] and report procedural terminology,[693] addresses records of the UNCOPUOS and Subcommittees,[694] sets out the length of reports on national activities in outer space[695] and of statements and scientific and technical presentations,[696] composition of the Bureaux of the Committee and its Subsidiary Bodies,[697] membership of the UNCOPUOS[698] and NGOs may request observer status with the Committee but should be concerned with matters falling within the competence of the Committee,[699] obligates each of the regional groups with responsibility to actively promote the participation in the work of the Committee and its subsidiary bodies of the member states also members of the respective regional group,[700] and obligates the Secretariat to provide briefings for all interested member states on issues to be discussed at sessions.[701]

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[690] Compendium RoP, *Ibid.*, at paras 1-7, and the documents referenced in FNs 9-20.
[691] Compendium RoP, *Ibid.*, at para 1 Decision-Making and documents referenced in FN21.
[692] Compendium RoP, *Ibid.*, at paras 1-3 Pattern of Meetings and documents referenced in FNs 22-26, note two weeks each for the STSC and LSC in February and March, and one and a half weeks for the main June Committee meeting but UNCOPUOS may decide on an *ad hoc* basis to extend or shorten.
[693] Compendium RoP, *Ibid.*, at paras 1 and 2 Procedural Terminology and the documents referenced in FNs 27-31; note that the LSC determined the meaning of this terminology.
[694] Compendium RoP, *Ibid.,* at paras 1-2 Records of the Committee and Sub-Committee and sources referenced in FNs 32-40, digital recordings are now used on a permanent basis.
[695] Not more than three pages: Compendium RoP, *Ibid.*, at para 1 Reports on National Activities in Outer Space and sources referenced FNs 41-42.
[696] Compendium RoP, *Ibid.*, at paras 1-2 Statements and Scientific and Technical Presentations and sources referenced FNs 43-47, and also the administration around inscribing statements.
[697] Compendium RoP, *Ibid.*, at para 1 Composition of the Bureaux of the Committee and its Subsidiary Bodies and sources referenced in FNs 48-50.
[698] Compendium RoP, *Ibid.*, at paras 1-2 Membership of the Committee and the sources referenced in FNs 52 and 53. Note states considering applying for membership in the Committee are encouraged to consider the possibility of acceding to the five UN treaties on outer space, or at least some of them. Interested states participate in the work of the Committee as observers.
[699] Compendium RoP, *Ibid.*, at para 1 Observer Status and the sources referenced in FNs 54-60. NGOs are defined as international non-profit organizations, with an established headquarters, an executive officer and a constitution or statutes.
[700] Compendium RoP, *Ibid.*, at para 1 Participants in the Work of the Committee and the sources referenced in FNs 61 & 6.2.
[701] Compendium RoP, *Ibid.,* at para 1 Briefings by the Secretariat and the sources referenced in FN 63.

This first edition Compendium setting out the way in which the main Committee and its two Subcommittees operate can only be applauded, as for the first time there is one document to consult in order to determine procedure. Nevertheless, the Compendium demonstrated the rigidity of its multilateral bureaucracy, for example briefings are provided to the Missions in Vienna of member states accredited to the UN and not all from the developing world are represented;[702] and the procedural terminology in Section 1(d) and the determination of the length of statements in Section 1(g), cannot be typified as rules of procedure when compared with those applicable to UNIDROIT (Statute, Provisions of the Statute Concerning the Functions of the Governing Council, and Financial Regulations). Moreover, UNCOPUOS and its Subcommittees are not in charge of their own agenda (Section 1(a)) or their own work/research, nor of their own budget. It is a good start, but more work needs to be done to detail further formal rules of procedure, and to get it approved by all member states.

3.7 An *Ad Hoc* Legal Sub-Committee?

In theory, all international space legislation is prepared in the LSC of UNCOPUOS, and after adoption by the main Committee, is channelled to the UNGA for adoption. UNGA can, at the initiative of the UNCOPUOS, decide on whether a document shall evolve into a treaty or shall remain an UNGA Resolution.[703]

Analysis indicated that the progressive development and codification of the law of space has moved through several stages, of which only the first one produced a number of binding legal instruments in the form of the five classic outer space treaties, which together with the 1963 Partial Test Ban Treaty can be considered as part of this core *corpus juris spatialis*.[704] Subsequently the history of space law displays an increasing number of less-binding norms of varying origins. The main developments of space law today happen in the field of soft(er) law, a proliferation of various non-binding rules many of which shows a tendency to develop into customary law. The best example is the slow ascendancy of rules for space debris

[702] See Appendix A: Participation Observation.
[703] Hobe, *supra* note 6, at 41-42.
[704] Jankowitsch, *supra* note 249, at 26-27.

mitigation from an essentially non-legal agreement between major space agencies to a status of soft-law regulation blessed by the 2007 UNGA Res. The SDM Guidelines were seen as a contribution to space law making by a non-UN forum, the IADC, consisting of the representatives of 12 states and ESA.[705] UNGA Res. 62/217 thus merely updated and endorsed the earlier work done by the IADC. In addition, the STSC, in spite of being part of UNCOPUOS, is described as one of the *other* fora involved in creating rules for human activities in outer space via its so-called Rex Report of 1999, which laid the basis of the Spatial Data Processing Grid technical report on Space Debris. Arguably thus, even one of the recent so-called soft law successes of UNCOPUOS cannot really be considered an UNCOPUOS norm-making initiative. Similarly, and just like the SDM Guidelines again without the benefit of much LSC participation, the STSC further produced and the UNGA endorsed, the non-binding LTS Guidelines. Furthermore, the LSC was criticized as still not having responded to the development that UNIDROIT had negotiated a (potentially) binding international space-law related agreement with its Space Protocol, whilst none had been created in UNCOPUOS since 1979, and which is obviously eroding its role as the highest body in space law making.[706]

Are the member states of UNCOPUOS willing and able to secure the LSC role which it has been created for? The debate following the German Proposal in 2014 to reorganize the LSC's working method may have led to a thorough reflection on the role of the LSC, but in the view of the German delegation it also showed that the expectations of the delegations did not converge at this point in time and that the initiative has limited chances of getting agreed upon.[707] The prediction in 2014 was that with this result, the LSC will enter into a difficult period, characterized by the understanding for the need of change but no emerging consensus on how to accomplish this. A broad set of concrete points for improvement has been worked out and concise expectations were formulated regarding the role and output of the LSC also in view of (competing) activities in other organizations and fora. If none of these are implemented or fulfilled, the LSC will become marginalized with regard to the current main issues of regulating space activities which are the

[705] Hobe, *supra* note 6, at 46-47.
[706] Schrogl, *supra* note 248, at 101-102.
[707] Schrogl, *Ibid.*, at 104.

sustainable use of the space environment (space debris mitigation and removal), the regulation of space activities and operations (STM including STA), and the growth of commercial and private space activities (including commercial human spaceflight and the proliferation of small satellites operated by growing number of different and diverse actors). In 1999, the Subcommittees were able to change their working methods at the right time and received considerable new impetus. The LSC should repeat this in the near future, but the prospects are not bright in spite of the fact that the discussion in 2014 indicated that UNCOPUOS member states understood the urgency to reshape their Subcommittee.

As, unlike the Moon Agreement, the SDM and LTS Guidelines evolved from the STSC and not the LSC, apparently thus scientists and not lawyers are currently the driving force in outer space norm-making. If the Artemis Accords is a demonstration of major spacefaring nations losing patience with UNCOPUOS, then how much more would their ire be directed towards the LSC?

Arguably the LSC has fulfilled its original mandate to build a functioning space law system. Moreover, the LSC is no longer practicing law as engineering, and it cannot even solve the delimitation question on its books since 1968. The inescapable conclusion is that the need for a permanent LSC has lapsed, and it is time to consider changing its status to that of an *ad hoc* committee to be convened whenever the main UNCOPUOS requires it. At this stage, the LSC sits annually for a longer period than the main Committee yet is not producing much. Thus, changing its status from permanent to when required would free much needed scarce resources. This is after all the system the very successful Legal Committee of ICAO follows. Again, it is hard to see UNCOPUOS reaching consensus on such a suggestion.

3.8 Transfer UNCOPUOS Functions to other United Nations Agencies?

Some did not even consider UNCOPUOS as having any future role in space norm-making and wondered as to whether a multinational/international model is likely to strengthen the stability and sustainability of outer space activities?[708] One of the main reasons of the failure to create a STM system is the persistent mistrust in addressing the lack of transparency on the nature of some payloads and the missions

[708] Plattard, *supra* note 161, at 60.

they are assigned to. No legal texts require the owner of such payloads to disclose these characteristics, in particular national or private proprietary rights can rule against that. Launching an undisclosed payload in accordance with international law is considered as a sovereign right. Thus, it would be a stillborn attempt to start negotiating an international agreement on payloads transparency, subject to means of verification accepted by all space-faring nations. Instead, a different approach is proposed based on the implementation of appropriate measures based on a Space Situational Awareness ('SSA') System ('SSAS') working on a continuous basis, using ground and space-based means, having the liberty to act independently. The collected monitoring information by this system would then be available to space-faring nations and other nations requesting access. As the possibility of pooling resources from existing or planned deployment of inspecting satellites belong to major space-faring nations, the concerned nations may decide through a multinational body that it is their vested interest to share capacities to achieve the common objective of sustainable space activities. This proposed multinational entity will have the capacity to monitor satellite orbits and, if necessary, use relevant means to move in the vicinity of one or several satellites.

The international law system is horizontal in nature,[709] and lacking an identifiable constitutional structure.[710] Yet at the same time international law-making often proceeds within the constitutional structure of IGOs. The international law-making system has been described as eclectic, unsystematic, overlapping, and often poorly coordinated. The central element is the UN, but it is not the principal one in certain specialized international law contexts. The UN is not a coherent whole but comprises multiple organs, Specialized Agencies, working groups, and programmes.

It was obvious for the UN to become the first and primary source of space law in view of the global reach of space activities.[711] From the onset space law required a high degree of international cooperation that by its nature could only be found and practiced in the only universal IGO. Whilst the UN has performed well in the past

[709] See *inter alia* Bin Cheng, *supra* note 69, at 178-181; Aust, *supra* note 2, at 5; Boyle and Chinkin, *supra* note 384, at 100.
[710] Boyle and Chinkin, *Ibid.*, at 100-101.
[711] Jankowitsch, *supra* note 249, at 10.

in establishing a legal regime for space activities, after the Moon Agreement it faced an even more arduous task in shaping a body of law that must grow with the increased space activity.[712] UNCOPUOS failed in this task mainly because neither the UN nor its Specialized Agencies were conceived as a legislative body and do not have the authority to adopt binding resolutions.[713] In practice though the UN has assumed the role of principal promoter of international law-making, and it is potentially well-suited for this role as it has legitimacy in the eyes of many members. As an IGO with universal membership, all states have in theory an equal voice and an equal vote in the UNGA where their right to participate in law-making activity is assured. Furthermore, the UN is a political organization, and deliberation, negotiation and compromise are its working currency and the principal rationale of its existence. If greater inclusivity and consensus are thereby facilitated, then global law-making is more likely to succeed. The UN's universal competence, and the powers it possesses under the UN Charter , embrace potentially all areas of political, economic, and social affairs. Human rights law-making was explicitly envisaged, whilst others such as the suppression of international crime have emerged through subsequent interpretation to meet the evolving needs of international society. The UN Charter thus proved a flexible instrument for accommodating such needs. It is the centrepiece of a heterogeneous system of Specialized Agencies, programmes, commissions, councils, and other bodies with responsibility for law-making in specific areas. Arguably, a committee such as UNCOPUOS is included.

The Specialized Agencies' most significant contributions to the law-making process are as the principal repositories and disseminators of technical expertise.[714] NGOs and national experts often influence the decisions of Specialized Agencies. This may be crucial for the development of new treaties as aptly demonstrated by the participation of outside experts and commerce in the development of the UNIDROIT's Space Protocol. Multilateral treaties from UN Specialized Agencies often provide the legal framework for international regulatory regimes with

[712] Jasentuliyana and Lee, *supra* note 612, at vii; note written two years after the Moon Agreement was opened for signature (and three years before it entered into force).
[713] Boyle and Chinkin, *supra* note 384, at 108-109; note the implied powers theory not covered, and for a good exposition thereon see Gadewski, 'The doctrine of implied powers of international organizations in the case law of on international tribunals', *Adam Michiewicz University Law Review* (2016), 46-59.
[714] Boyle and Chinkin, *Ibid.,* at 125-126.

standard setting, monitoring processes and compliance mechanisms, adopting new treaties and treaty amendments, revising or adding annexes, and setting additional soft law standards on related matters. In effect, each constitute a standing diplomatic forum, with ongoing oversight to enable law-making to evolve relatively quickly in response to new problems, priorities and opportunities. They do allow member states to exercise some degree of oversight over implementation and compliance. However, UNCOPUOS is not an independent Agency of the UN, but merely a committee that reports into the UNGA.

Based on the total lack of ratifications of the Space Protocol, and the successful delaying tactics from major spacefaring nations at the ITU Council meetings to allow the ITU to become the Supervisory Authority,[715] what the Space Protocol has arguably demonstrated is that any attempt outside of the UN system to make space law, is doomed for failure. Ideally, the legislation of outer space should stay within the UN as the only universal IGO[716] which has overseen the peaceful uses of outer space since the time of Sputnik I.[717] Two UN Agencies, the ITU and ICAO, spring to mind as possibly being appropriate, both in structure and function, to take over the UNCOPUOS responsibilities. Both are regulatory IGOs to a certain extent already involved in international space law.

3.8.1 Moving UNCOPUOS Functions to the ITU[718]

Radio is fundamental to the use of space, and it was inevitable that the ITU got involved in outer space issues.[719] Without radio, most tracking, and all telemetry, which monitors the health and performance of a satellite through diagnostic information supplied by radio by the satellite itself, and telecommand of the satellite from the ground, as well as telecommunications links, would be impossible. Unfortunately, a radio link degraded by interference is useless. Radio supports the

[715] See Appendix A: Participation Observation.
[716] C. Ku, *Global Institutions: Internationals Law, International Relations and Global Governance* (2012), at 167.
[717] Boyle and Chinkin, *supra* note 384, at 126.
[718] For historical development of the ITU see von der Dunk, *supra* note 286, at 275-276.
[719] Lyall and Larsen, *supra* note 36, at 189 and FN2.

whole space programme, and international arrangements were required so that the best use can be made of the natural resource which is the radio spectrum.

The ITU is a periodic IGO seeking to achieve international consensus through decisions of member states entered into at treaty conferences convened on a periodic basis.[720] The governing body is the Plenipotentiary Conference which meets every four years and is empowered to adopt and amend the ITU's basic instruments the ITU Constitution and the Convention. The ITU also convenes World Administrative Radio Conferences ('WARCs') every three to four years to adopt or revise the international Radio Regulations, which is a treaty with technical, operational, regulatory, and procedural provisions governing access to radiofrequency spectra and associated orbital resources. Each country has one vote to cast at treaty conferences, but in most cases (except for elections) decisions are made by consensus rather than voting. Apart from periodic conferences, the ITU is composed of several permanent features namely the Secretary-General (the legal representative of the ITU), its Council (a board of directors that meets annually and governs between PP's), and the three substantive sectors of the Union which undertake technical studies, approve standards known as 'Recommendations', develop handbooks, and prepare for treaty conferences. These are Radiocommunication ('ITU-R'), Telecommunication and Standardization ('ITU-T'), and Telecommunication Development ('ITU-D').

ITU Law exists on three levels.[721] In the first place, all ITU law is subordinated to the Constitution, which is the basic instrument of the ITU setting out the core principles of the ITU, criteria for membership, basic organizational structure, voting rights and procedures, basic financial arrangements, and dispute resolution. The Constitution and the Convention together sets out the mission, structure, and working methods of the ITU. Secondly, the ITU Convention supplements the Constitution and establishes the procedures for the organization's operations. It prevails over the next level. Thirdly, Administrative Regulations (Radio Regulations and the International Telecommunications Regulations) which have

[720] A. Allison, *The ITU and Managing Satellite Orbital and Spectrum Resources in the 21st Century* (2014), at 10-11.
[721] von der Dunk, 'Legal Aspects of Satellite Communications', in F. von der Dunk and F. Tronchetti, *Handbook of Space Law* (2015), 456-500, at 463.

international treaty status.[722] Administrative Regulations, based on the ITU Constitution and the Convention, are binding.[723] This hierarchy of treaty law is in line with sub-Article 4(1) read in particular with sub-Article 4(4) of the ITU Constitution. Nonetheless, a fourth and softer level of ITU law was identified, namely all non-binding instruments such as recommendations, resolutions and opinions, for example telecommunications standards passed by the World Telecommunications Conferences.[724] These expert opinions are a form of ITU soft-law which exert strong influence. The 2000 World Telecommunication Standardisation Assembly ('WTSA') adopted an alternative approval system of non-binding standardisations, as opposed to standards adopted as part of ITU Administrative Regulations which are legal rulings.[725] This fast-track system allows for the ITU-T to react quickly to swiftly developing technologies.

The ITU Constitution sets forth the core principles of the ITU, whilst the ITU Convention sets the details for running the ITU. The relationship between the Constitution and the Convention was described as the separation of detail and principle.[726] The Administrative Guidelines are the operative guidelines for ensuring the smooth functioning of the telecommunications system and radio transmitting around the world, and are developed and amended by world and regional conferences hosted by the various Sectors via the periodic meetings of the ITU-D, ITU-R and ITU-T. These are generally binding on member states if that Administrative Regulation is adopted by the PP by means of a Final Act.

Membership of the ITU is characterized by a blend of government and private sector actors.[727] However, only member states have the right to vote and to actively participate in treaty conferences. A distinctive feature of the ITU as an IGO is that private sector companies and academia are encouraged to join and to actively participate in the Union's working-level substantive activities as 'Sector Members'. This requires a sizable annual financial contribution. They may join any or all of the Union's three sectors as Sector Members, but only on approval of their national

[722] Lyall and Larsen, *supra* note 36, at 207.
[723] Hobe, *supra* note 6, at 211.
[724] C. Koenig *et al, EC Competition and Telecommunications Law* (2nd ed. 2009), at 24-25.
[725] Lyall and Larsen, *supra* note 36, at 206.
[726] Koenig, *supra* note 724, at 21-22; ITU Constitution, *supra* note 296, sub-Articles 4(3), and 54(1) read with 4(1) and (3).
[727] Allison, *supra* note 720, at 11-12.

administrations. Many satellite operators participate in the ITU-R Sector, and many satellite IGOs participate in sector activities, for example ARABSAT, International Telecommunications Satellite Organization ('ITSO'), and INTERSPUTNIK. The ITU-R Sector is responsible for technical standards, managing the satellite coordination process, and maintenance of the Master International Frequency Register ('MIFR'). Thus, commercial satellite operators consider it worthwhile to invest in membership to this UN body in order to attend and actively participate in ITU technical activities including in the Study Groups and their Working Parties, working side by side with the world's regulators, where they can launch studies and introduce contributions leading to formulations of standards and technical reports that establish the basis for treaty conference decisions on spectrum allocation and associated orbital use. As the satellite operators develop new technologies and services and seek access to expanded spectra and orbital resources, they can drive the changes to the international regulatory landscape needed to accommodate their business plans by essentially drafting the regulations that will be applied to their operations and to those of neighbouring spectrum users. Such international standards are often implemented by national regulators in their domestic regulations to serve as a basis for national licensing. Sector Members also have the opportunity to learn what their competitors are planning and to impact the plans of others which could have a harmful effect on their operations. Sector Members may fully participate in the adoption of questions for study and recommendations and to provide chairs and vice-chairs for study groups and assemblies, and may also attend treaty conferences including WARCs, but as observers only with more limited participatory rights.[728] Many states though allow satellite operators to serve on their national delegations to treaty conferences as technical experts, providing an opportunity for them to draft proposals and contribute to national positions.[729] The US Congress has approved this unique arrangement by passing a law to enable corporate participants on US delegations.

[728] ITU Constitution, *supra* note 296, Article 3; Final Acts of the Plenipotentiary Conference (Antalya, 2006), Resolution 14, available at https://search.itu.int/history/HistoryDigitalCollectionDocLibrary/4.18.43.en.100.pdf (last visited 30 May 2022).
[729] Allison, *supra* note 720, at 8-12.

There would be advantages in transferring UNCOPUOS legislation duties to the ITU. Firstly, the ITU is, just like UNCOPUOS, part of the UN system, but as a UN Specialized Agency it has the necessary international legal status and independence to create treaties on its own, unlike the UNCOPUOS which has to forward draft treaty texts to the UNGA for approval and adoption. Secondly, for satellite operators the ITU is the organization that oversees access to the Geostationary-Satellite Orbit ('GSO') and other orbits through management of the coordination process, maintenance of the MIFR, development of global standards, and allocation of radio frequency spectra to radio services. The ITU thus deals with orbit and frequencies, the two physical 'assets' indispensable for satellite communications.[730] This includes the up-link and down-link frequencies to be utilized relating to the satellite occupying a certain slot or orbit. Successful completion of the ITU's regulatory processes results in a frequency assignment and associated orbital position for GSO satellites that are recorded with a favourable finding in the MIFR.[731] This status affords the satellite operator with international recognition of its operation, priority over other potential users of those resources, plus protection from harmful interference from other operators with lesser rights. Such international protection in addition to national licensing afford the satellite operator with assurance necessary to support the great investment necessary to construct, launch and operate a satellite network. Thirdly, the ITU has a very long history as an IGO, and its success can be attributed to its reputation as a technical and historically non-political body driven by the rapid progress of technology and its importance to society, and the key role played by its private sector participants which develop and implement so many of the world's technological advances. It is driven by competitive forces to grow and make the most effective and efficient use of available resources. In addition, relations between the ITU and UNCOPUOS were effective in assuring that no undue incompatibilities arose between telecommunications law and space law in the overlapping area of satellite communications.[732]

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[730] von der Dunk, 'Space for Celestial Symphonies? Towards the Establishment of International Radio Quiet Zones', 17 *Space Policy* (2001), 265-74, at 272.
[731] Allison, *supra* note 720, at 9, 13.
[732] von der Dunk, *supra* note 721, at 492.

Would the ITU, an established UN Agency, already involved in outer space issues through its regulation of the allocation of orbital slots and the use of radio frequencies for satellites, be suitable to fix the UNCOPUOS problems? Unfortunately, this cannot be unreservedly advocated. Firstly, the ITU is focused on frequency interference, insofar as it addresses space law issues, and as such does not have a wide enough constitutive scope. As it is, the ITU's system for allocation, allotment and assignment of frequency resources, and of orbital positions, is already criticized as competency creep.[733] Outer space is not subject to national appropriation, and initially the ITU was charged only with allocating, allotting and registering frequencies but due to the inevitable relationship between orbital positions and the risk of interference tied to certain positions, those orbital positions also came to be allocated, allotted and assigned through the same mechanisms. This happened unchallenged and can now be said to have become public international law *per se*. Secondly, it record was challenged.[734] The ITU regulatory framework has its foundations in the Cold War geopolitical world of the 1960's. In recent times it has become over-involved in discussions which has limited its efficacy, such as on the regulation of the Internet, lack of competency of bandwidth, orbital issues relating to military activities, and dealing with the paper satellites issue. The ITU's areas of responsibility are crucial to the ongoing sustainable development of the space economy, and fundamentally it is an organization that depends on international cooperation, yet its Constitution does not cater for an effective internal dispute resolution mechanism which can handle orbital and radio spectrum congestion and radio frequency interference. There is also a general failure to embed long term planning to ensure that all states have equitable access to and use of orbital slots and the radio spectrum, which presents a major threat to the very stability that the framers of the Cold War arrangements craved and pose a serious threat to space security. Thirdly, the ITU is the word's second oldest IGO[735] and saddled with an antiquated and incredibly complex decision-taking and law-making structure, which is precisely not what space law needs at this stage as it would

[733] von der Dunk, *supra* note 286, at 275-276.
[734] Newman, 'Regulation of Artificial Satellites', in Y. Failat and A. Ferreira-Snyman (eds.), *Outer Space Law Legal Policy and Practice* (2017), 163-177, at 173.
[735] The ITU was established in 1865 with a permanent bureau; Bowett's, *supra* note 24, at para 1-013.

further complicate the reaching of consensus on new space law treaties. In the fourth place, the ITU legal regime is labouring under some constraint as the ITU is still unsuccessful in agreeing to a so-called 'Stable Constitution'. The switch to a constitutional system at the 1992 Geneva PP made the ITU Constitution subject to the common rules on the amendment of international treaties, with the result that different versions of the ITU Constitution may apply and might be in force for different member states at the same time.[736] The PP of Guadalajara, 2010, adopted Resolution COM5/1 recognizing that consensus has emerged among the ITU member states to work towards a Stable Constitution for the ITU, and established a Council Working Group ('CWG') to produce a draft Stable ITU Constitution. The PP as the supreme organ of the ITU has among its responsibilities the consideration and adoption of proposals for the amendment of the ITU Convention and Constitution.[737] Organising a Diplomatic Conference for the adoption of a new Stable ITU Constitution will be expensive and time-consuming. Fortunately, there is in place a specific non-automatic amendment procedure (Sub-Article 55(6) ITU Constitution and sub-Article 42(6) ITU Convention) to be followed at a scheduled PP, and thus any member state can recommend an amendment but it will enter into force only by those formally accepting it.[738] The Stable ITU Constitution was supposed to have been created via an amendment to the current ITU Constitution at PP-14, with no need for a totally new treaty to be drafted. Unfortunately, the CWG took the decision that no proposals for such an amendment was to be entertained during PP-14, in the main as there was not enough support for such a constitutional amendment and because the majority appeared to be satisfied with the four-year PP Conference cycle ensuring that the major decision-making organ of the ITU will meet every four years. There is no indication that this was solved at PP-18, as planned, either.[739] Fifthly, the main space-faring countries have already

[736] Koenig, *supra* note 724, at 21-22*;* see Appendix A: Participation Observation.
[737] Lyall and Larsen, *supra* note 36, at 200; this amendment is competent and permissible in terms of the ITU Constitution, *supra* note 296, Article 55, and Article 42 of Convention of the International Telecommunications Union, available at https://search.itu.int/history/HistoryDigitalCollectionDocLibrary/5.22.61.en.100.pdf (last visited 30 May 2022).
[738] Aust, *supra* note 460, at 240.
[739] See Document C20/58-E of 3 March 2020, Report by the Secretary-General Compilation of decisions captured in PP-18 summary records, available at www.itu.int (last visited 4 March 2020).

demonstrated an apparent deep-seated opposition to the ITU taking more responsibility in the outer space arena as evidenced by their opposition to the proposed role of the ITU as Supervisory Authority of the International Registration System for Space Assets. This originated in the opposition of the established satellite industry at the Berlin Diplomatic Conference in 2012, and subsequently in the ITU's Council and PP's. As a result, it is hard to see the established satellite industry allowing their countries to consent to the ITU to take an even more responsible role for the UNCOPUOS norm-making function. That is a great pity indeed, because should the ITU take up this new task, although rather different from its core activities so far, it would at least be able to ensure not just continued compliance, but likely even consistency (in terms of technical details) of registrations in the Space Protocol's International Registry with its own MIFR.[740] In sixth place, the ITU was discarded, due to concerns about the overcrowding of orbits, as the institutional structure best suited for the development and establishment of a STM system in order to track space objects, prevent collisions and interference and deal with debris.[741] Arguably only a cooperative global body will be able to manage space efficiently and fairly,[742] and the initial preference was for the ITU, which has to a certain extent managed the traffic of satellites in GEO virtually since the beginning of the use of the orbit in the 1960s, but the ITU's work is limited to some aspects of telecommunications programmes and does not encompass many of the tasks required for space traffic control (satellite collision prevention services, a re-orbiting and re-entering regime for non-functioning space objects, and a general space debris regime). ITU rules, aimed at the avoidance of radio-frequency interference, are far more advanced than rules aimed at the avoidance of physical interference,[743] and the IADC's SDM Guidelines would be more preferable which although not a legally binding agreement does encompass elements of STM such as the use of disposal orbits and notification in case of controlled re-entry (but with the addition of environmental protection provisions to

[740] von der Dunk, *supra* note 721, at 493.
[741] For a general technical explanation see Pelton, *supra* note 234.
[742] Monserrat Filho, 'Which Institutions for Space Traffic Management?, *18 SPACE PoL'Y* (2003), 179-182, at 180; note written before the SDM and LTS Guidelines.
[743] Contant-Jorgenson *et al,* 'The IAA Cosmic Study on Space Traffic Management', *22 SPACE PoL'Y* (2006), 283-288, at 283; note written before the SDM and LTS Guidelines.

avoid pollution of the atmosphere or troposphere). In seventh place, although decision by vote is possible within the ITU structures, the attainment of consensus is the major avenue through which agreement on the regulation of international communications is obtained. Consensus can be perilous precisely because the hope is that all in the ITU will concur in consensus, and an intransigent participant can paralyze the process or demand exorbitant or unwise concessions from others.[744] The drive for consensus may result in a compromise that weakens the eventual result or be expressed in vague words causing ambiguity and permitting or masking contradictory views as to the exact meaning. Lastly, the ITU does not possess competence comparable to that of the ICAO, as it is highly doubtful that the ITU can determine, independently from individual member states, binding legal rights and obligations of a sufficiently far-reaching and substantial nature, let alone enforce regulations *vis-à-vis* specific states and their private entities.[745]

3.8.2 Moving UNCOPUOS Functions to the ICAO

ICAO is the global forum of status for international civil aviation.[746] The Assembly is the sovereign body and main policy-setting body of ICAO where each member has a seat and one vote.[747] It meets in ordinary session once every three years, and may meet in extraordinary session at any time upon call of its Council or at the request of at least one-fifth of the membership.[748] Decisions require a simple majority of votes cast, but in practice most decisions are taken by consensus and the taking of formal votes is rare.[749] Most decisions on substantive matters are taken in the form of a resolution, many of whom are detailed policy-setting documents, but may also contain instructions to ICAO organs, or principles, policies or

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[744] Lyall, *supra* note 427, at 33-35.
[745] von der Dunk, *supra* note 730, at 272-3; note that this article dealt with the protection of the radio-astronomy spectrum to allow radio astronomy observations to continue, and von der Dunk suggested the creation of international radio quiet zones, and discussed an 'ICAO-approach' and an 'ITU-approach' to this issue; Appendix A: Participation Observation.
[746] Available at https://www.icao.int/about-icao/Pages/default.aspx (last visited 26 December 2019); L. Weber, *International Civil Aviation Organization (ICAO)* (3rd ed. 2017), at para 56.
[747] Convention on International Civil Aviation 1944, available at https://www.icao.int/publications/pages/doc7300.aspx (last visited 30 May 2022) , Art 48(b) ('Chicago Convention'); Rules 3 and 43 Standing Rules of Procedure of the Assembly of the International Civil Aviation Organisation 7th ed. (2012) ('ICAO Rule(s)').
[748] Art 48(a) Chicago Convention, *Ibid.*, ICAO Rules, *Ibid.,* Rules 1 and 2.
[749] Art 48(c) Chicago Convention, *Ibid.*, ICAO Rule 28, *Ibid*.

guidance to be followed by members.[750] Assembly Resolutions are published after each session and disseminated as 'Assembly Resolutions in Force'. The Assembly elects states to be members of the Council for three years, vote annual budgets, review expenditures, delegate to the Council the powers and authority necessary or desirable, consider proposals for amendment of the Convention, and deal with any matter not specifically assigned to the Council.[751] For the discharge of these responsibilities the Assembly establish subsidiary bodies for the duration of its ordinary triennial session, namely an Executive Committee to co-coordinate the work of all its subsidiary bodies,[752] a Coordinating Committee in case of two or more commissions during a session, a Technical Commission responsible for air navigation matters,[753] an Economic Commission on air transport matters, a Legal Commission responsible for legal matters, an Administrative Commission responsible for budget and finances,[754] and lastly a Budget Working Group that normally assists with the triennial budget.

The Council is the executive governing body of ICAO which is elected by the Assembly for a three-year term, and is composed of 36 states selected by the Assembly, each with one seat and one vote.[755] The Assembly shall give adequate representation to the states of chief importance in air transport. Decisions require approval by a two-thirds majority, and 25 votes are required when adopting Annexes to the Convention or amendments. The Council's functions are divided into mandatory functions and permissive functions.[756] In the first place *legislative functions.*[757] The adoption of Technical standards and recommended practices ('SARPs') in the form of Annexes to the Convention, and amendments thereto, to which all member states adhere to and applicable to all flights in their air space and to their own aircraft through national implementing legislation.[758] Secondly the

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[750] Weber, *supra* note 746, at paras 58, 59 and 63.
[751] Art 49 Chicago Convention, *supra* note 747.
[752] Weber, *supra* note 746, at para 61; ICAO Rules, *supra* note 747, Rules 14(a) and (b), and 15.
[753] The Technical and Legal Commissions are not mentioned by name, and are established by ICAO Rules 14 and 18, *Ibid*; See Weber, *Ibid.*, at FN 116 & 117.
[754] ICAO Rule 14(c).
[755] ICAO Webpage, *supra* note 746*;* Articles 50(a) and (b), 54 and 90 Chicago Convention, *supra* note 747; Weber, *supra* note 746, at para 64.
[756] Weber, *Ibid.*, at para 67; Articles 54 and 55 Chicago Convention, *supra* note 747.
[757] Weber, *Ibid.* at para 67, note author's emphasis; Art. 90 and 54(1) Chicago Convention, *Ibid*.
[758] Van Fenema, 'Legal Aspects of Launch Services and Space Transportation', in F. von der Dunk and F. Tronchetti (eds.), *Handbook of Space Law* (2015), 382-455, at 409-410.

administrative functions[759] which includes the administration of the ICAO finances, appointment of the Secretary General and other Secretariat personnel, collection and dissemination of information on air navigation and air transport services, reporting of infractions of the Convention, submission of annual reports to the Assembly, and carrying out the directions of the Assembly which includes the administration and supervision of the Universal Safety Oversight Audit Programme and the Universal Security Audit Programme. Thirdly the *judicial functions*[760] such as the adjudication of disputes between Contracting States on the interpretation or application of the Convention or its Annexes, and between Contracting States on the interpretation or application of the International Air Services Transit Agreement. In practice and in terms of the *ICAO Rules for the Settlement of Differences* the Council can act as a mediator between the parties that brought complaints to the Council.

The Committees and Commissions of Council are composed of Representatives of the Council or their Alternates, normally between 11 and 15. These usually meet during the first phase of each Council session ('Committee Phase') in order to prepare the discussion in full Council during the second phase ('Council Phase'). All Committees report to the Council through the respective Committee Chairman, who is elected by the Council. The main Commissions/Committee are first the *Air Navigation Commission* as the main technical body of ICAO with a principal function to consider amendments or modifications to the Annexes and to recommend them to the Council,[761] but it also advises the Council on the collection and dissemination of information it considers necessary and useful for the advancement of air navigation. It consists of 19 Members appointed by the Council in their personal capacity as experts, not as representatives, from among persons nominated by Contracting States. Secondly, *the Legal Committee* created by Assembly Resolution A1-46 during the very first ICAO session, with the task to advise the Council and the Assembly on legal questions and to prepare drafts for

[759] Chapters XII and XV Chicago Convention, *supra* note 747, and sub-Articles 55(a), (b), (h), (j), and (k); Weber, *supra* note 746, at paras 67-68.
[760] Articles 53, 54(b), 66 and 84 Chicago Convention, *Ibid.*; Weber, *Ibid.*, at paras 69-70.
[761] Articles 57 (a), (c) and (e), 58(a) Chicago Convention, *Ibid.*; Weber, *Ibid.*, at paras 77-81.

international Conventions or Protocols in the field of air law.[762] It comprises of all Contracting States and each member has one vote. Decisions are taken on a simple majority of votes cast, but in practice works by consensus. The elaboration of a draft text is first entrusted to the Secretariat, assisted by a Secretariat Study Group, or to a Sub-Committee of the Legal Sub-Committee. The first draft text will then be submitted to the Legal Committee, which will review the draft in the light of the views of all its member states. The Legal Committee adopts the text and submits it to the Council for consideration, together with a report thereon. The Council may take any action it deems fit, including circulation of the draft to Contracting States and IGOs for comment, but such comment period may not last for longer than four months. Should the text not be considered mature, it may be referred back to the Committee or to a Special Group for further consideration. If considered sufficiently mature, it will procced to a Diplomatic Conference.

Air Navigation Conferences and Divisional Meetings may be convened by the Council from time to time as circumstances require.[763] All Contracting States are entitled to attend. Although the ICAO Rules of Procedure allow each state one vote, recommendations and conclusions are usually adopted by consensus. Divisional Meetings are meetings of worldwide scope dealing with one or a few specific subject matters in the air navigation or air transport fields for example aircraft accident investigation and/or aviation meteorology.

Panels and Working Groups may be set up by the Air Navigation Commission or by the Council, when necessary to advance the solution of problems requiring expert advice including technical problems which cannot be solved adequately or expeditiously by the Air Navigation Commission.[764] An example is the Airworthiness and the Aviation Security Panels, which are deliberately of limited size and staffed by experts in their personal capacity and not as representatives of states. Their reports are presented as the advice of a group of experts, and not as representing the view of Contracting States. Panels may set up Working Groups to advance their work, and which will have a specific task set out in their terms of

[762] Weber, *Ibid.,* at paras 82-83; the procedure for the taking of decisions in the preparation of drafts for instruments of international air law are laid down in the Rules of Procedure for the Legal Committee.
[763] Weber, *Ibid.*, at para 85-87.
[764] Directives for the Panels of the Air Navigation Commission, ICAO Doc. 798/4/4, Section 1-3; Weber, *Ibid.*, at paras 90-94.

reference, and a limited membership. ICAO general practice is that states member to the parent body may not be represented on a Working Group, but they may participate as observers.

The Secretariat is headed by the Secretary-General, the chief executive officer of ICAO, and appointed by the Council.[765] The Council must also appoint such other personnel as may be necessary. Secretariat Study Groups differ from Working Groups and are set up by the Secretariat and composed of experts from Contracting States, moderated by an officer of the Secretariat, and with the specific task to advance the work of the Secretariat in developing proposals or draft texts, for example draft international air law instruments for the Legal Committee to consider. The Secretariat is divided into five Bureaux[766] (Air Navigation, Air Transport, Legal, Administrative and Technical Cooperation) each headed by a Director reporting to the Secretary General.

The following in ICAO appears most attractive to advocate extending its mandate to initiate and manage regulatory and safety issues for civil- and commercial spaceflight.[767] Firstly, ICAO's established and recognised competence as an IGO. Secondly, the advantage of having a founding treaty/constitution is that procedures are certain and that there are established rules of procedure. On the one hand there aren't pointless annual meetings, yet they can meet more when required. Thirdly, decision-taking in the Assembly requires a simple majority of votes cast, but in practice most decisions are taken by consensus and the taking of formal votes is rare. Still the option is there to vote in order to break deadlocks. Fourthly, the advantage of being a UN Specialized Agency in that decisions on substantive matters are taken in the form of a Resolution, and there is no need to have it approved by the UNGA. Fifthly, the exemplary and established ICAO practice whereby Assembly decisions are published after each session and disseminated to all Member states as *Assembly Resolutions in Force*, the Committees meeting during the first Committee Phase in order to prepare the discussion in full Council during the second Council Phase,[768]the Air Navigation Council as the main

[765] Sub-Article 54(h), Chapter XI Chicago Convention, *supra* note 747; L. Weber, *Ibid.,* at para 95.
[766] L. Weber, *Ibid.*, at para 98.
[767] Jakhu, Sgoba and Paul, *supra* note 299, at 11-12.
[768] This is in essence what the German delegation at the UNCOPUOS Legal Sub-Committee suggested; see discussions in 1.11 and 3.6 *supra.*

technical body consists of Panels staffed by 19 non-political experts in their personal capacity and not as representatives of states, the Legal Committee deals with treaties on an *ad hoc* basis when required and its elaborate and established procedure has resulted in the widespread acceptance and ratification of virtually all international air law instruments developed, and the Chicago Convention obliges Contracting States to collaborate in securing the highest practicable degree of uniformity concerning regulations, standards, and procedures.[769]

Thus, ICAO is a fully experienced and operational legislative and implementing intergovernmental body, with detailed rules, regulations, guidelines, and operational procedures for aviation that could be gradually extended to space with the necessary modifications.

Thus, ICAO is the most plausible solution for UNCOPUS norm-making problems.

3.9 Methodology to effect Recommendations

How can this be effected? A two-step process is recommended, first preparing ICAO for Space issues, and secondly UNCOPUOS to transfer its functions to ICAO. These can be approached simultaneously.

Preparing ICAO. Amendment of the ICAO constitutive documents is considered a viable option.[770] The Chicago Convention provisions were amended over the years in 14 instances to bring institutional and procedural provisions up to date, but in only two instances were amendments required to substantive provisions,[771] namely Article 3*bis* that every state must refrain from using weapons against civil aircraft in flight, and Article 83*bis* to cater for the possibility of oversight transfer to another state. The suggested procedure is first for the ICAO Council to amend relevant ICAO Annexes and/or adopt new ones to address issues such as licensing of spaceports, human space flight, safety of personnel and astronauts, and security. Secondly to amend the Chicago Convention to fully establish ICAO's jurisdiction over relevant space activities. Possibly also required is a regulatory model outlining the structure of an 'ICAO for Space Organization', and to assist in this it would be

[769] Hailbronne, 'International Civil Aviation Organization' in B. Bernard (ed.), *Encyclopaedia of Public International Law Instalment 5* (1981), 68-70, at 69.
[770] Weber, *supra* note 746, at paras 16-26.
[771] Jakhu, Sgoba and Paul, *supra* note 299, at paras 16-26.

necessary to undertake a study of the experience gained by those countries which have already established a national licensing system for commercial space operation, and to find a better method of linking/merging the ITU information/notification system with an improved UN registration system.

The second halve of the solution would be the UNCOPUOS internal process to be undertaken. Academia provides no insight into the nuts-and-bolts of such an operation, in other words how to practically go about changing a UN Committee such as UNCOPUOS to the extent suggested. Thus, it is necessary to go back to first principles and examine how the LSC was created as a permanent organ. The relevant UNGA Resolutions are somewhat sparsely worded. UNGA first created an *Ad Hoc* committee via UNGA Resolution 1348 (XIII) (13 December 1958) 'Question of the Peaceful Uses of Outer Space', and with one of its purposes to report on the nature of the legal problems that might arise in carrying our programmes to explore Outer Space. It should be noted that the *Ad Hoc* committee was further instructed to report back on the 'future organizational arrangements to facilitate international co-operation in this field' within the UN. Although a substantive report came out from the one session of the *Ad Hoc* Committee, including an assessment of the legal aspects involved, it did not serve as a basis for further endeavours into this field due to the fact that some members states refused to participate.[772] Secondly, UNGA Res. 1472 (XIV) (12 December 1959) 'International co-operation in the peaceful uses of outer space' again instructed a study of the nature of the legal problems which may arise from the exploration of outer space. Third, UNGA Res. 1721(XVI) of 10 December 1961 'International co-operation in the peaceful uses of outer space' stipulated that international law will apply to outer space and celestial bodies, which are free for exploration and not subject to national appropriation.

Hobe *et al* simply mentioned that the *Ad Hoc* Committee, convened in May 1958, decided to further establish the legal and technical Subcommittees. Jasentuliyana and Lee claimed that the *Ad Hoc* Committee divided itself into two

[772] Kopal, 'United Nations and the Progressive Development of International Space Law', *Finnish Yearbook of International Law* (1996), 1-58, at 2.

Subcommittees.[773] According to Kopal, one of the original LSC delegates and a former Chief of UN Outer Space Affairs Division, the organizational structure for international cooperation in space activities crystallized and two Subcommittees the LSC and STSC were created, each composed of the same member states as the parent body, for detailed consideration of specific and suggestions concerning scientific, technical and legal questions. Lachs, the very first chairman of the LSC, explained that it was obvious from the start that the law-making process could not be left to be shaped solely by practice.[774] The UN was entrusted with this task and had to make a choice of procedures. Developments were occurring too quickly and the leisurely pace of development of international law chapters such as that of the law of the sea could not be afforded. Hence the early initiative to embark on the elaboration of the written law. It was realized that the task was not one which could feasibly be accomplished by the adoption of a single instrument, but rather lent itself to a continuous process of adopting and gradually choosing principles and rules of law. A special committee was set up and one of its two Subcommittees was to concentrate exclusively on the drafting of legal principles and rules for outer space.

Article 22 of the UN Charter allows the UNGA to establish 'such subsidiary organs as it deems necessary for the performance of its functions'. Per the UNGA Rules of Procedure, each Main Committee is a master of its own procedures and may establish committees 'as it deems necessary for the performance of its functions', and which may in turn set up Subcommittees.[775] In this sense, the establishment of the LSC was a sole prerogative of the UNCOPUOS, and they did it to have a more specialized approach to certain important matters.[776] Thus, UNCOPUOS may revise that decision and decide to close it down, like with any working group.

[773] CoCoSL I*, supra* note 61, at para 13 Historical Background; and in general Jasentuliyana and Lee, *supra* note 612.
[774] Masson-Zwaan and Hobe, *supra* note 75, at 126.
[775] See Rules 96 and 102 Rules of Procedure of the General Assembly (2021), A/520/Rev.19, at Part XII Committees; ANNEX III Resolution 1898 (XVIII) Adopted by the General Assembly at its 1256th plenary meeting, on 11 November 1963, at para (e).
[776] Correspondence with Sergiy Negoda, former Legal Liaison Officer, Committee, Policy and Legal Affairs Section, UNOOSA, on 7 July 2021.

Such major changes should be effected via the UNGA's Fourth Committee as part of the annual Peaceful Uses of Outer Space Resolution, alternatively in terms of Article 22 of the UN Charter. A real-world example of such a procedure was the creation of the United Nations Office for Project Services ('UNOPS') from the United Nations Development Programme ('UNDP').[777] The Secretary-General of the UN proposed, on the recommendation of the UNDP Executive Board pursuant to its decision 94/12 of 9 June 1995, to separate the then Office for Project Services ('OPS') from the UNDP. The UNGA, acting under Article 22 of the UN Charter, designated the UNOPS as a separate and identifiable entity.[778] This had the effect that UNOPS is a subsidiary organ of the UNGA and accordingly an integral part of the UN itself such as the UNDP,[779] and UNOPS enjoys the legal status and capacity of the UN itself (full juridical personality, capacity to contract, and immunity from every form of legal process except insofar as expressly waived by the UN Secretary-General). Both suggested methods would require consensus from UNCOPUOS, perhaps not feasible in the past, but the time may be ripe to try and obtain consensus from the members on such drastic steps.

3.10 Conclusion to Chapter 3

But will a move to ICAO be feasible? This is by no means a given. The severe practical difficulties in amending multilateral instruments were touched on.[780] This can be assumed to be even more so for a constitutive treaty. One of the amendment examples provided on the ease of amendment of ICAO constitutive documents also does not inspire confidence. In 1984, as a result of the shoot-down of Korean Airline Flight 007, the ICAO Assembly introduced Article 3*bis* which entered into force only fourteen years later upon the receipt of its 102nd ratification in 1998.[781]

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[777] UNOPS is an operational arm of the United Nations, supporting the successful implementation of its partners' peacebuilding, humanitarian and development projects around the world; available at https://www.unops.org/english/About/Pages/default.aspx#sthash.SiYeUv4b.dpuf (last visited on 2 October 2015).
[778] UNGA decision 48/501 of 19 September 1994.
[779] 2 October 2015 email correspondence with Ms Anna Charles, Legal Analyst, Integrated Practice Advice and Support of UNOPS.
[780] See 1.11 discussion on the possible amendment of outer space treaties.
[781] Contant Jurgens, *supra* note 743.

Unfortunately, not all expect a switch to ICAO to proceed smoothly. ICAO's discussion of an international legal framework for sub-orbital spaceflight in the context of the UNIDROIT Space Protocol, led to the following warning:[782] Aviation applications making use of space infrastructure and assessing whether an essentially hybrid activity should be regulated as part of air law, highlight the complexity of interaction of non-space law with space law *strictu sensu*, and often led to approaches for solving issues ignoring the broader aspects of the involvement of outer space and space activities in the particular area at hand. In the second place there are significant differences between the regimes covering air navigation and space activities, and there may be problems if a hybrid vehicle encounters a problem on the way to space but is still in airspace.[783] Thirdly, it is not clear whether SARPs are automatically binding international legal instruments as military aircraft are not automatically subject to this regime. Moreover, the Chicago Convention utilises aspirational and thus non-mandatory treaty language and allows deviation by implication in setting out a specific communication procedure when impractical to comply. There is also a marked difference between a Standard and a Recommended Practice, which utilises exactly the same definition but requires only 'the uniform application of which is recognized as desirable and to which Contracting States will endeavour to conform'. Fourthly, the regulation of safety aspects of spacecraft travelling through space may entail a transition to a 'new aerospace law'.[784] This is criticized as unworkable, as more than 50 years of discussions in the UNCOPUOS could not solve the apparently intractable problem of the delimitation of outer space, and the safety aspect is regulated as liability under space flight.

Possibly the biggest concern is the inconclusive debate regarding ICAO to deal with STM. It was suggested that jurisdiction over Suborbital Aerospace Transportation Vehicles ('SATVs') flights be given to ICAO for safety and air traffic control purposes, as the design of ICAO gives it the ability to regulate SATV activities in ways that UNCOPUOS cannot.[785] For this UNCOPUOS's half-century inability to set the boundary between air and space has to be addressed, and it was suggested

[782] von der Dunk, *supra* note 286, at 278-279.
[783] Jakhu, Sgoba and Paul, *supra* note 299, at 11-12; Sub-Articles 3(a) and (b), 37, 38 Chicago Convention, *supra* note 747.
[784] Jakhu, Sgoba and Paul, *Ibid.*, at 12.
[785] Fitzgerald, *supra* note 254, at 3-4 and 23; note author relied on Sreejith, *supra* note 95.

ICAO could simply define the upper limit of airspace in one of the Annexes, leaving inter-planetary and outer-space activities to UNCOPUOS. As both UNCOPUOS and ICAO are UN bodies perhaps the UNGA would be the appropriate body to mediate disputes.[786] UNCOPUOS members already agreed that if a space object is launched into outer space for peaceful purposes, the permissions of countries that are overflown during the launch do not have to be obtained, as long as the launching state is a party to the Outer Space Treaty.[787] A planet-wide integrated administration is much more secure and efficient if it can count on global space management to assure the safe and orderly functioning of all the space tools linked to the system. For STM it is likely that at least three international bodies, working closely together, would be necessary:[788] A database body holding real-time information about the situation of all spacecraft, a regulatory body in charge of the creation of operational rules, standards and recommended practices, and a permanent coordinating body in charge of monitoring and evaluating the accomplishment and efficacy of the rules adopted. These STM bodies should be essentially technical and autonomous, their membership chosen by and accountable to the UNCOPUOS, but on the basis of the model established by the 1944 Chicago Convention as the best international institutional experience. The Conference on the Regulation of Emerging Modes of Aerospace Transportation ('REMAT') recognized ICAO as having structured SARPs on air traffic management, personnel licensing, rules of the air and airport planning, which could be extended to encompass principles that could be applied to the regulation of commercial space transport.[789] ICAO is in any event already active in space and cooperating with UNOOSA on aerospace issues, such as the planning and development of a new satellite-based system to facilitate and improve communications, air navigation, surveillance and air traffic management.[790] ICAO

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[786] Fitzgerald, *Ibid.,* at 4-6; his argument appears to be that ICAO action is possible as the term 'airspace above its territory' in Articles 1 and 87 Chicago Convention, *supra* note 747, is not defined, but the Tables of Cruising Levels in Appendix 3 of Annex 2, Rules of the Air, lists 51,000 feet as an altitude and then lists 'etc.,' allowing suggestions for higher altitudes in future.
[787] Fitzgerald, *Ibid.,* 3-34, at 13-14, and FN 71; this argument rests on author's definition of 'inner space' as a zone located between 80 kilometres and 110 kilometres in altitude, and 'upper airspace' includes the zone traversed by suborbital and low-Earth-orbit activities.
[788] Monserrat Filho, *supra* note 742, at 179-182.
[789] REMAT was held on 24-25 May 2013 in Montreal and discussed *inter alia* the subject of ICAO for space, with special focus on commercial space transportation; see Abeyratne, 'Bringing a Commercial Space Transport Regulatory Regime ICAO - is it Feasible*?, 62 ZLW* (2013), 387-397, at 389-390.
[790] Weber, *supra* note 919, at para 15.

as the STM organization was not universally accepted, as STM is criticized as limiting the freedom of use of outer space,[791] contrary to popular belief ICAO is allegedly not a legislative body,[792] the 19 Annexes to the Chicago Convention are entirely on civil aviation and cannot be amended (or new Annexes adopted to cover such areas as licensing of spaceports, human space flight, space traffic management, safety of personnel and astronauts and security), spacecraft often traverses air space prior to its entering outer space vertically and in a trajectory that may not pass over much of state-to-state airspace whereas international civil aviation is exclusively involved with country-to-country air transportation, air-space delimitation will have to be settled, a convention solely dedicated to international civil aviation cannot include 'space standards' pertaining to navigation in outer space, and the Assembly Resolution recommending adoption of an amendment to cater for space issues could provide that any state that does not ratify within a specified time would cease to be a member of ICAO and a party to the Convention. Would states jeopardize their membership of ICAO for issues of space regulation? ICAO would have to be renamed as the International Aerospace Organization and a new wing added to ICAO comprising experts in space safety, security and the establishment and running of spaceports. This would require a new multilateral treaty covering commercial space transport regulations, plus separate Annexes to this new Convention pertaining to safety, environmental control and security. Lastly it is suggested that a more practicable solution is that the UNCOPUOS, ITU, and ICAO should each approach specific problems, as these organizations will be building blocks for a future STM.[793]

Such criticism does not surprise as the development of the two legal regimes, air and outer space took totally different paths and each has its own system of treaties, soft law and rules and regulations. The interests in ICAO were and still are mainly commercial, whilst commercial spaceflight is only now taking off. In spite of the large amounts involved in outer space activities, it is not near that in commercial aviation. Lastly, simply transferring UNCOPUOS functions to ICAO might

[791] See Contant-Jorgenson, *supra* note 743, at 282.
[792] Abeyratne, *supra* note 789, at 388, 396-397; author, then an ICAO legal advisor, unfortunately did not elaborate on this statement.
[793] Contant-Jorgenson, *supra* note 743, at 283.

perhaps institute the same problems in ICAO, as ICAO functions admirably whilst UNCOPUOS does not.

Thus, until the above is satisfactorily addressed, for the time being it is recommended that the easiest route is the one of least resistance and to work with the *status quo*. There are after all abundant arguments that space law had actually predicted and catered for the regulation of the private or commercial space sector, or NewSpace, from the outset.[794] Firstly, commercial activities are described in Article VI Outer Space Treaty as 'the activities of non-governmental entities in outer space', and owe their existence and legitimacy to public international law (in other words space law), although it was decided that it should be rather general in character and leave special points to be defined by the more specialised legislation. Secondly, Article VI Outer Space Treaty imposed a clear duty on the state to license, monitor and otherwise supervise the space activities of its private commercial sector. Thirdly, Article XI Outer Space Treaty foresaw notification of the need for warning of activities that are planned in outer space. In fourth place, space-age legal entities or IGOs are recognized under the Article III Outer Space Treaty.[795] IGOs may declare that they accept the rights and obligations of the treaties (REG Art VII(1), MOON Art 16, LIAB Art XXII(1), ARRA Art 6), and state parties to the treaties who are members of such an IGO are obliged to ensure that the organization makes this declaration. References to states in the treaties are deemed applicable to IGOs that make the required declaration (OST Art XIV, REG Art VII, MOON Art 16, LIAB Art XXII(2), ARRA Art 6). Regarding questions of liability, an IGO must be presented with a claim before it is presented to the state parties to the Liability Convention that are also members of the IGO (Article XXII(3)(a) LIAB). Only if the IGO itself does not pay the compensation due can the claimant state 'invoke the liability' of the IGO's member nations (LIAB Art XXII(3)(a). Lastly, Principle 5 of UNGA Res 1962 (XXVIII) (13 December 63) provided for the possibility for private entities to carry out outer space activities subject to governmental authorisation and supervision, and thus codified the

[794] Smith, *supra* note 56, at 50; CoCoSL I, *supra* note 61, at para 44; Hobe, *supra* note 6, at 209.
[795] Gabrynowicz, *supra* note 243, at 1044-1045; such innovations add to overall debate on legal status of emerging supranational entities, a hallmark of international law in the last decades of the 1900's.

attempt of the international community to enact legal principles for outer space activities in a formalised manner.[796]

In order to continue with UNCOPUOS as it is, and following the philosophy of law-as-engineering (clients are interested in products solving problems and the risks associated with such but not really in the detail), and the concept of the international space law regime (a body of key actors, norms, laws, policies, industries, and activities, as well as social, behavioural and institutional practices),[797] the following two maxims are proposed as a minimum to be followed:

A. *We need to accept a fourth stage of development and redefining of space law* lato sensu, *in order for soft law rules no longer to be ignored*

The significance of soft law is a frequently misunderstood phenomenon, in spite of the abundant evidence of the importance of soft law as an element in modern international law-making, especially in declarations or resolutions adopted by states in international conferences or in the UNGA.[798] Significantly, the stalling of UNCOPUOS legislation activities did not stop the formulation of 'new space-related rules' demanded by technological progress, or an increase in the number of space activities, or an increase in the number of space participants.[799] Thus, new norms addressing specific issues, for example the reduction of orbital space debris, were developed in the context of NGOs or on a bilateral or regional basis, and in an alternative process to UNCOPUOS. The SDM Guidelines were described to be in the first place proof that the practice of soft law in space activities is a generally recognized system resulting from common interests and goals,[800] and secondly as a virtuous system that is flexible, corresponding to the needs of the space community, yet limited to the international relations coordinating and preparing space activities.

[796] CoCoSL I, *supra* note 61, at paras 40, 44.
[797] See Introduction to Research on theoretical approaches relied on.
[798] Boyle and Chinkin, *supra* note 384, at 211.
[799] Tronchetti, *supra* note 629, at 4-5.
[800] Ferrazzani, *supra* note 453 174, at 117.

Soft law instruments have three major features in common.[801] Firstly, they are indicative of the modern trends emerging in the world community where IGO's or other collective bodies have the task of promoting action on matters of general concern. Secondly, they deal with matters that reflect new concern of the international community to which previously it was not sensitive or not sufficiently alert. Thirdly, where for political reasons it is hard for states to reach full convergence of views and standards on these matters so as to agree upon legally binding commitments. Although legally unregulated, they become the object of agreed guidelines or statements of common position or policies. Arguably these may lay the ground for the gradual formation of customary rules or treaty provisions.

The subtlety of the processes by which contemporary international law can be created is no longer adequately captured by reference to the orthodox categories of custom and treaty.[802] Arguably soft law instruments may represent an attractive alternative to law-making by treaty. It may be easier to reach agreement when the form is non-binding, as the use of soft law instruments enables states to agree to more detailed and precise provisions because their legal commitment and the consequence of non-compliance are more limited. It may be easier for some states to adhere to non-binding instruments because they can avoid the domestic treaty ratification process (and escape democratic accountability for the policy to which they have agreed), but this may also make it harder to implement such policies if funding, legislation, or public support, are necessary. Soft law instruments are easier to amend or replace than treaties, in particular when all that is required is the adoption of a new resolution by an international institution. Soft law instruments may provide more immediate evidence of international support and consensus than a treaty whose impact is heavily qualified by reservations and the need to wait for ratification and entry into force.[803] An instrument does not need to constitute a binding treaty before it can exercise an influence in international politics, in spite of

[801] Cassese, *supra* note 2, at 196-197.
[802] Boyle, 'Some Reflections on the Relationship of Treaties and Soft Law in Multilateral Treaty-making', in V. Gowlland-Debbas (ed.), *Multilateral Treaty-making: The Current Status of Challenges to and Reforms Needed in the International Legislative Process* (2000), 25-38, at 25 and 27.
[803] A practical example is the Convention Establishing the Square Kilometre Array Observatory took four years to progress to signature and the required five ratifications took another 18 months, whilst the non-binding MoUs with each operating entity in the host countries only a few weeks; see Appendix A: Participation Observation.

the more conventional argument that soft law is not law.[804] Non-binding instruments, whether called recommendations, guidelines, codes of practice or standards, are significant in signalling the evolution and establishment of guidelines which may ultimately be converted into legally binding rules.

Notably, each soft law instrument in space law was developed to best address one specific space activity and thus its effectiveness depends on that activity.[805] Soft law functions in space law as substitution for a treaty to harmonize national laws, for example the Application of the Concept of the 'Launching State'. It also functions for the development of an international regime (for example the Remote Sensing Principles), as a choice and preference (for example the SDM Guidelines), as *Lex ferenda* to avoid North-South confrontation (for example the Space Benefits Declaration), and lastly as an important step in the creation of international custom.[806] Non-binding declarations or resolutions of the UNGA or any other soft law instrument are not invariable law *per se*, but may be evidence of existing law, or formative of *opinio juris*, or state practice that generate new law.[807] Soft law can also be a part of the multilateral treaty-making process.[808] Some non-binding soft law instruments are the first step in a process of negotiation eventually leading up to conclusion of a treaty, for example the early UNGA Resolutions on outer space were precursors to later treaties.

The use of soft law is so widely recognized that certain multilateral treaties now contain reference to 'international recognized norms and standards' and 'established principles of international law', for example Article 54(1) Convention of ICAO has express authority to adopt international standards and recommended practices.[809]

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[804] Shaw, *supra* note 2, at 87-88; Author relied on 1975 Helsinki Final Act on international human rights.
[805] Aoki, 'The Function of "Soft Law"' in the Development of International Space Law" in I. Marboe (ed.) *Soft Law in Outer Space: The Function of Non-binding Norms in International Space Law* (2012), 57-86; Author was the penultimate LSC chair.
[806] Boyle and Chinkin, *supra* note 384, at 215.
[807] Boyle and Chinkin, *Ibid.*, at 212 FN 3 relied on the decisive catalytic effect of certain UNGA Res.; see also Brownlie, 'The Legal Status of Natural Resources', 162 *Recuil des Cours* (1979), 245-318, at 261.
[808] Boyle and Chinkin, *Ibid.*, at 213-214.
[809] Kwakwa, *supra* note 326, at 188 and 190; however a member state may opt out, plus author's reliance on the legal status of ICAO Standards and Recommended Practices is debatable.

Soft law may acquire binding legal character as elements of a treaty-based regulatory regime (for example the 1994 Nuclear Safety Convention),[810] can constitute a 'subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions, or assist in the development and application of general international law.[811]

Identified advantages in utilizing soft law are to avoid the need to go through the process in treaty form and once adopted no ratification is necessary, to allow states to participate in the creation of new rules without the necessity of implementing them into national law,[812] and soft law can be considered as emerging law[813] thereby allowing non-state actors such as IGOs, NGOs and international private associations/corporations to participate in the elaboration and implementation of soft law. That could include UNCOPUOS.

Arguably it is a fallacy to dismiss soft law as not law, and properly understood it can and does contribute to the corpus of international law.[814] Nonetheless, it has to be accepted with caveats. Reliance on soft law is not to be confused with the application of *lex ferenda* or 'evolving law'. Some soft law instruments are, just like treaties, part of the process by which international law evolved, but in the evolutionary stage they have not yet generated actual law. Soft law principles are not an alternative to treaty amendment or implementation agreements, or that the need for consensus law among states is diminished. On the contrary, while amendments to treaties or implementing agreements may limp into force with only partial participation, adopting soft law principles without consensus support has little if any impact on the law-making process. Non-binding recommendations, guidelines, codes of practice or standards, although important and influential, do not in themselves constitute legal terms:[815] What is determinative as to their status is not

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[810] Boyle and Chinkin, *supra* note 384, at 213; Article 31(3)(a) VCLT.
[811] Boyle and Chinkin, *Ibid.,* at 212-213, and relying on *Gabčíkovo-Nagymaros Case (Hungary v. Slovakia)* (1997) ICJ Reports 7 (or ILM (1998)) para 140; *Gabčíkovo-Nagymaros Case* (OSPA Arbitration) (2003) PCA.
[812] A. Kaczorowska, *Public International Law* (4th ed. 2010)*,* at 65; note this author specifically relied on environmental protection, where most states are not yet ready to accept binding obligations but gradually take measures to conform with international standards.
[813] M. Dixon, *Textbook on International Law* (2007), at 52.
[814] Boyle and Chinkin, *supra* note 384, at 212-213.
[815] Shaw, *supra* note 2, at 88.

the title given to the document in question, but the intention of the parties as inferred from all the relevant circumstances as to whether they intended to create binding legal relations between themselves on the matter in question.[816]

B. Although multilateral treaty-making is no longer the most appropriate tool for meeting the new needs and requirements of the current international law society, treaties cannot be ignored in international space legislation

The Forum Geneva on May 16, 1998, addressed the question as to whether multilateral treaty-making is still the most appropriate tool for meeting the new needs and requirements of the current international society?[817] The rules relating to forms and procedures of treaty-making were investigated, with the focus on the *instrumentum*, the instrument in which the international obligations are expressed, and not on the *negotium* or content thereof. To some the public international law treaty-making process has become so fraught with contentiousness as to be virtually a non-starter for many important causes.[818] This mess was caused in the first place by the proliferation of nation-states players, and secondly by the political cacophony that inevitably arises in a community of close to 200 predominantly democratic states and which is not designed to promote efficiency in international law-making. Thirdly, the post-Cold War spread of strife among ethnic, regional, tribal, religious and other groupings within states or across boundaries led to domestic political pressures that weakened national Governments' ability to act decisively in international affairs. Fourthly, the increasing international regulation of more issues once typically seen as part of state domestic jurisdiction, for example the Internet. Fifthly, the rise of NGOs and other non-state actors as influential

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[816] See also Cassese, *supra* note 3, at 196-197.
[817] Gowland-Debbas, 'Introductory Remarks', in V. Gowland-Debbas (ed.), *Multilateral Treaty-making: The Current Status of Challenges to and Reforms Needed in the International Legislative Process* (2000), 1-9, at 3.
[818] Brower, 'The International Treaty-Making Process: Paradise Lost, or Humpty Dumpty?', in V. Gowland-Debbas (ed.), *Multilateral Treaty-making: The Current Status of Challenges to and Reforms Needed in the International Legislative Process* (2000), 75-80, at 75-78; author relied on the 1969 VCLT which was pushed by US and signed but never ratified, although they had to recognize that it largely restated customary international law that the US accepts and thus US Courts do apply the VCLT.

participants in the international law-making process, for example the creation of the International Criminal Court.[819] As a result private industry was advised in general to privatize the international law-making process to the maximum extent possible, and to push more elaboration of custom as conventions to which a major power does not become a party to nevertheless can be brought to bind that state as custom.[820] There are identified limits to these alternatives though: Some attachment to the power of states inevitably will be required to secure enforcement, and custom is evolutionary and thus uncertain and contentious.

Some questioned, specifically in space law, as to whether we should not accept that the international treaty-making system is forever gone. The multilateral treaty-making process was able to reach agreement on a number of treaties establishing basic principles for outer space law, but subsequent multilateral negotiations aimed at resolving the more specific legal issues posed by rapidly developing space activities have failed to produce satisfactory results.[821] The need for adequate space law-making is as urgent as ever, but the international community has discovered that it is far more difficult to reach consensus on new legal rules today. Thus, it is time to reassess existing legislative techniques. The outer space treaties are still appreciated, but the interpretation of its provisions is increasingly being influenced by commercial interests and politics.[822] In an era in which international cooperation on treaties is tenuous, there is a preference for informal agreements and resolutions. It is no longer the case that international law is 'made' by a finite number of states through a handful of intergovernmental processes.[823] Today, international law is made in a large number of *fora*, including multilateral processes, tribunals, and the organs of IGOs. Although states remain the primary makers of international law, they are joined by other participants such as IGO's and judges as well as entities which are influential in the making of international law. These activities are

[819] For a more detailed discussion hereon, see Oswald-Beck, 'Participation of Non-Governmental Entities in Treaty-Making: the Case of Conventional Weapons' in V. Gowlland-Debbas (ed.), *Multilateral Treaty-making: The Current Status of Challenges to and Reforms Needed in the International Legislative Process* (2000), 41-44.
[820] Brower, *supra* note 818, at 79.
[821] Danilenko, 'Outer Space and the Multilateral Treaty-Making process', *High Technology Law Journal Vol. 4, No. 2* (1989), 217-248, at 218.
[822] Johnson-Freese, *supra* note 675, at 182.
[823] Pronto, *supra* note 599, at 606 and 616.

increasingly disparate, with different rules and practices being developed in different areas, by a number of entities, with little by way of coordination, and reflect a decentralized approach to the making of international law. As a result, lawmakers feel increasingly less constrained by existing practices and procedures, allowing greater space for innovation. Thus, evolution and change in procedures and processes has become relatively common.

Others accentuated the opposite. Treaties remain a major feature of international relations, and their defining function is to impose agreed duties on the parties to them.[824] The binding force of treaties rests on the principle what has been agreed to is to be respected (*pacta sunt servanda*), and this principle has been codified in the VCLT in Article 26. The invocation of state consent is the ultimate basis for the creation of law, and consent of course is the foundation for law deriving from treaties. The whole point of making binding agreements is that each of the parties should be able to rely on the performance of the treaty by the other, even when such performance may have become onerous or unwelcome. A treaty remains one of the most evident ways in which rules binding on two or more states may come into existence. Recognized limitations on treaty law are that it is created only for those who accept it, primarily the parties. Thus, the principle of no benefit is conferred, and no obligation imposed, by a transaction between third parties *(res inter alios acta nec nocet nec prodest*), is codified in Article 34 VCLT. Treaties are *res inter alios acta*, and thus without effect for non-parties. There are two apparent exceptions hereto. First, when an obligation stated in a treaty becomes an obligation of general customary law, in which case the non-party state may be bound by the same substantive obligation but as a matter of customary law and not via the effect of the treaty. Secondly, when a state not a party to a treaty accepts an obligation in the treaty, or to derive a benefit from the treaty, should all states concerned so agree. There are some principles or rules of international law of such overriding importance that compliance with them cannot be escaped or excused even by the consent of other states affected or potentially affected. These peremptory norms are classified as *jus cogens* and codified in Article 48 VCLT. The way multilateralism is currently practised in UNCOPUOS, and in particular the LSC, prevents treaty-

[824] H. Thirlway, *The Sources of International Law* (2014), at 7 and 31, 35-37.

making from being the most appropriate tool for meeting the needs and requirements of space law, but even if the *status quo* is accepted that simply cannot mean that treaty-making can be ignored, as it remains the best form of international legislation and is probably why authors still call for new treaties in space law.[825] Thirdly, the conclusion on the ESPI Report (on legal mechanisms for the creation of hard law norms in the space domain) underlined that in areas that are dominated by technical development and that have high national security implications, the space law community should not stop at soft law.[826] It is not enough, and it does not provide for sufficient protection of the space environment. Hence, where issues are neither technically dynamic nor highly security-relevant, hard law creation should be the ultimate aim. The ESPI Report warned that even when rapid technical development is involved and security sensitivity is present, it should not be assumed that soft law is the only tool available, as hard law instruments can be remarkably flexible and can take care of security concerns when designed correctly.

Regarding international norm-making in general, the following practical comments on treaty-making may be of assistance to UNCOPUOS. Firstly, the focus should be on the *instrumentum* and not on the *negotium*. Treaty-making is not necessarily a one-off event, rather it is a process.[827] Negotiation leads not merely to the adoption of a treaty text *simpliciter* but often an act of *regime-creation.* Thus, the process of treaty-making, or the 'transaction', is relational rather than discrete. Once the text is negotiated the baton is passed from negotiators to implementers. Thus, treaties are to be treated not as one-off events, but as dynamic instruments which evolve over time. Secondly, although the international legislative process as we have known is no more, it is being, and inevitably must be, supplanted by a new one.[828] An inter-state legislative that functions is indispensable, and should favour, wherever practicable, so-called 'framework' conventions which establish broad obligations but permit gradual compliance through national adjustment of norms without further resort to the ratification process; or remit the international

[825] For example Ferreira-Snyman, 'Environmental responsibility for space debris', in Y. Failat and A. Ferreira-Snyman (eds.), *Outer Space Law Legal Policy and Practice* (2017), 257-283, at 283.
[826] Pecujlic, *supra* note 292, at 141.
[827] Redgwell, *supra* note 482, at 91; author's emphasis, and based on environmental law treaties.
[828] Brower, *supra* note 818, at 80.

legislative process to specialized, sectoral bodies, and to regional organizations which may be best able to fashion conventions that in fact will clear municipal ratification hurdles; or encourage the development of soft law, the progressive reshaping and modification of which may provide a sound basis for the adoption of viable hard-law conventions. It appears that such compromises advocated are already being entertained. UNIDROIT's Cape Town Convention is a highly successful example of a framework convention (with the innovative addition of a specialised sector Space Protocol); UNIDROIT and UNCOPUOS are examples of specialized, sectoral bodies; And UNCOPUOS' SDM and LTS Guidelines are examples of soft law, or alternatively of Hobe's 'softer law',[829] in space law.

[829] Hobe, *supra* note 6, at 47.

Conclusions to Research

Born of Cold War forces, the UNCOPUOS space treaties contain both the aspirations and fears of the times.[830] It proofed to be durable, as both established and newly active spacefaring nations recognize the beginning of a new stage of space law development. Despite existing gaps, which remain in need of closing, space law has achieved enormous maturity in an exceedingly short time. Arguably the international space treaty regime has served its original purpose well. The US and the USSR never undertook any significant militarization of space, the few issues of liability and return were dealt with smoothly, space objects were registered properly with the UN, and most importantly no nation ever put nuclear weapons in orbit, tested nuclear weapons above the atmosphere, or even made serious threats to that effect.[831]

The next 50 years will look very different with falling costs, new technologies, Chinese and Indian ambitions, and a new generation of space entrepreneurs promise a bold era of space development.[832] It will almost certainly involve tourism and better communications networks, and in the long run it may involve mineral expropriation and even mass transportation. Space will become ever more like an extension of Earth, thus an area for firms and private individuals and not simply for governments. For this promise to be fulfilled though, the world needs to create a system of laws to govern the heavens.

This research was conducted under the five propositions set out at the start of the thesis, namely there is a space law regime, hard law in the form of treaties is always preferable to non-binding soft law, the UN Committee COPUOS is unable to produce any further outer space treaties or for that fact amend the existing ones and consequently that it has become ineffective in producing hard space law, UNIDROIT's Cape Town Approach is more suitable to modern treaty-making in space law, and the drafting of a treaty is an act of creation, thus a special art of the international lawyer. The first four were addressed mainly in the chapters above. The fifth proposition appears to be unacknowledged by space law academics and by delegations to UNCOPUOS. It is immensely frustrating at UNCOPUOS meetings to hear delegation after delegation calling for new treaties on specific topics, and so obviously not understanding the time and effort required in getting hundreds of delegates to reach consensus on a draft treaty text, arranging a very expensive Diplomatic Convention and shepherding the draft through,

[830] Gabrynowicz, *supra* note 243, at 1053.
[831] See in general: Martinez *et al*, *supra* note 293, at 31-32.
[832] *The Economist, supra* note 245, at 9.

and then obtaining the necessary number of ratifications required for entry into force.[833] Even more frustrating, is the sometimes stock suggestion in textbooks for any perceived *lacunae* in space law to be addressed by way of a new treaty.[834] Such calls from academics operating in the sphere of international law, demonstrate a lack of understanding of treaty law, and treaties itself. At the heart of this research, was the desire to investigate the treaty-making process relating to space law. UNCOPUOS's failure as a norm-making institution to ensure that the exploration and use of outer space is carried out for the benefit and interests of all countries (to paraphrase Article 1 of the Outer Space Treaty) was examined and addressed. The making of international law is an organic process involving an admixture of the affirmation of existing procedures with a healthy blend of innovation.[835] It is essential that space lawyers go back to their roots and re-engage with treaty law and multilateral negotiating practices and techniques, and apply law-as-engineering. Should this advice be ignored, UNCOPUOS and space lawyers could well be replaced by forums such as the Consortium for Execution of Rendezvous and Servicing Operations ('CONFERS'), consisting of a collaboration of carefully chosen industry and government space experts and stakeholders, both domestic and international.[836] CONFERS is an independent, self-sustaining industry forum to advocate for and promote on-orbit satellite maintenance, servicing, and rendezvous operations by collaborating to research, develop, and publish voluntary, consensus best practices, guidelines and technical and safety standards, and engaging with governments on policy and oversight of satellite servicing activities. To fulfil its mission, CONFERS intends to recruit a broad array of members from satellite original equipment manufacturers, satellite operators, service providers, insurers and underwriters, and to engage other stakeholders from industry, academia, and governments. The process is intended as fully collaborative and will include dedicated outreach activities to engage the global commercial satellite community. Clearly it is not a legal entity and will operate as an unincorporated collaboration for the benefit of its members, but there is support for the CONFERS endeavour as the future for STM, as international consensus is far away, and a

[833] See Appendix A: Participation Observation.
[834] See for example Ferreira-Snyman, *supra* note 211, at 283 calling for a new treaty binding on all UN member states to regulate *all* aspects of the use of outer space; own emphasis.
[835] See in general Aust, *supra* note 460, at Chapter 6 Adoption and Authentication.
[836] See in general https://www.satelliteconfers.org/; plus CONFERS Articles of Collaboration; available at https://www.satelliteconfers.org/wp-content/uploads/2019/09/CONFERS-AoC-061919- _FINAL-1.pdf (last visited 10 January 2020).

'bottom up' approach based on best practices and emerging national standards is seen as the first step forward.[837]

Sreejith launched a stringent attack on academics active in space law.[838] All of the textbooks that include space law in their structure has in common that in relation to other branches of international law such as environmental law, human rights, and law of the sea, the discussion on space law is brief. In addition, most of the discussions on space law appear to be doctrinal discourses on, for example, territorial sovereignty or discussing various sectors of state activities. None of the discussions breaks the mould of dogmatism, and all textbooks convey the impression that space law is about five outer space treaties and a few resolutions. Sreejith's harsh criticism is mostly unfounded, but not so Goode's more subtle criticism that almost all writers on international law in general and treaty law in particular focus exclusively on public law treaties.[839] Goode made the point, quite correctly, that some private law conventions are capable of making significant innovations in the methods and effects of international law-making, such as with the Cape Town Convention and its associated Space Protocol. These not only involved private law, public international law, and the conflict of laws, but also complex jurisdictional questions involving organisations from public and private law collaborating within their own distinctive working method.[840] Goode believed the following conclusions can be drawn from these instruments, firstly that no area of private law should any longer be regarded as taboo, secondly it is necessary to think outside the boundaries of national commercial laws in devising new solutions to international problems, and lastly the public interest both in national security and in the continuance of public services means that there are likely to be more areas in what is primarily a private law convention that will also contain public law provisions.

Realpolitik demands treaties as best law, but von der Dunk was willing to accept that the SDM Guidelines led to stronger binding rules than a treaty.[841] This raises the question as to the future of the UNCOPUOS in the development of space law? There is no doubt that the success of the institutions based on soft law had diverted a lot of momentum away from the UN's codification

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[837] Editorial, 'Introduction to the special issue on Space Situational Awareness and Traffic Management, *Journal of Space Safety Engineering* 6 (2019), 63-64, at 64.
[838] Sreejith, *supra* note 95, at 374.
[839] Goode, *supra* note 366, at 523; also that it was imperative with the Aircraft Protocol to hold joint sessions of the UNIDROIT committee of governmental experts and a Subcommittee of the Legal Committee of ICAO to ensure both were satisfied with the result, as the Council of ICAO was then supposed to take on the role of Supervising Authority of the Aircraft Registry.
[840] Goode, *Ibid.*, at 540.
[841] von der Dunk, *supra* note 630, at 56.

efforts. Ferrazzani predicted that soft law-making in space activities will soon face the somewhat delicate dilemma of whether to co-exist in parallel with UNCOPUOS (and possibly came to rescue its future role), or whether to develop separately *in lieu* of it. Should one accept the value of the contribution of soft(er) law in outer space, then arguably it is preferable that such rules and guidance be developed within the UNCOPUOS, which was after all created to produce outer space law. However, the COPUOS65 Chair's recent surprising non-paper detailing major meetings on outer space activities over the next 14 months would indicate that finally UNCOPUOS is willing to engage with its lack of norm-making in outer space legislation.[842] This document referred to the *Summit of the Future* to take place in September 2023 to set out the UN's purpose and principles and innovate the United Nations' practices. The "Our Common Agenda" report (A/75/982) identifies many of the world's most critical challenges, including maintaining the peaceful, secure and sustainable use of outer space in the face of new risks to security, safety, and sustainability. In addition, the chair of UNCOPUOS, in consultation with the Bureaux of the Committee and its Subcommittees, will present before STSC in 2023 proposed elements for consideration as potential input by the Committee and its Subcommittees to the *Summit of the Future*. This non-paper also referenced the proposed and historic *Joint Panel Discussion of the First and Fourth Committees of the UN General Assembly*, in October 2022, in New York, which will address the *Summit of the Future* and its multi-stakeholder dialogue on outer space. Lastly, mention was made of a potential *UN/Portugal conference on the topic of space traffic management* to be held in the first half of 2023, in providing incentives for further consideration by the Committee in 2023. The non-paper was enthusiastically supported by the delegations of Switzerland, USA, UK, France, Japan, and Russia (in spite of the major differences between these states due to the invasion of Ukraine by Russia). It is evident that this will be the next major developments in outer space, and it is easy to assume that it was the earlier excellent work of the German delegation that pre-empted this renewed energy in COPUOS.[843] Apparently though, this development was caused by the steep rise in satellite registrations with 40% of the total of all satellites that ever flew being registered at UNCOPUOS over the last year, and in addition the ITU is struggling with Rwanda's

[842] Non-Paper by the Chair of the Committee, Item 14 of the provisional agenda, 7 June 2022, available at https://www.unoosa.org/documents/pdf/copuos/2022/Non-paper-by-the-Chair-of-the-CommitteeE.pdf (last visited 7 June 2022); Appendix A: Participation Observation.
[843] See *supra* 1.11.

application for frequencies for 330 000 satellites.[844] Could it be that there is again a felt need for new rules, in a propitious political climate, and with due representation of the interests involved?[845] That remains to be seen as there have been many false dawns since 1970's Moon Agreement.

What about the future of the Space Protocol? Originally the Space Protocol had generated significant interest from states with emerging economies, which form an important part of the space community.[846] These countries, many from the Latin American, African and South Asian regions, are currently the fastest growing states in terms of space capabilities and are searching for the means to obtain critical technology that many in established countries take for granted, and have the most to gain from an instrument such as the Space Protocol. The heart of the matter is that the Space Protocol is an instrument intended to facilitate the growth of space activities. Without a doubt many will still need the Space Protocol, even if shunned by the major operators.[847] The capital markets are fickle and may change as they did during the recent recession, and then the established operators may again have to resort to traditional ways of influence. Many small space operators are unable to obtain financing from capital markets, but can still obtain funding from banks and private financiers. Germany and China appear to have different attitudes about financing than the large satellite companies and apparently continue to be interested in the Space Protocol. Developing countries are increasingly seeking satellite services, whether their own or from commercial providers. Should it ever become operational the Space Protocol will establish a unique international law governing security interests in space assets based on asset-based financing, as it is flexible and allows op-in and opt-outs of many provisions, which would enable the shaping of a legal regime uniquely suited for each country. It is clear that China, an important space power in the world, has a great stake in the success of the space financing industry.[848] Apparently the Space Protocol is not off the discussion list at all, and UNOOSA is preparing in the background with the ITU for future reengagement with the Space Protocol, as it is expected that the major multilateral meetings on outer space activities over the next 14 months will regenerate intense interest in space activity

[844] Discussion 9 June 2022 at COPUOS65 with Michael Newman Legal Officer, Committee Policy and Legal Affairs, UNOOSA; Appendix A; Participation Observation; Anonymous, 'Rwanda Files at ITU for nearly 330,000 Satellites', 21 October 2021, available at https://spacewatch.global/2021/10/rwanda-files-at-itu-for-nearly-330000-satellites/ (last visited 9 June 2022).
[845] See *supra* 3.3.
[846] Appendix A: Participation Observation; also Porras, *supra* note 381, at 369-370.
[847] Lyall and Larsen, *supra* note 36, at 394-395.
[848] Zhao, *supra* note 529, at 67 and 79; note that this author urged China to accede and at 77-79 provided handy recommendations of the declarations China should make when acceding.

funding.[849] It remains to be seen whether the major spacefaring States will drop their objections though.

What remains is Hobe's question as to whether the Space Protocol will ultimately benefit the space industry, and which will only be settled with the passage of time.[850] Although it has not entered into force, it will be interesting to see whether or not the Space Protocol will make a valuable contribution to the commercialization of outer space activities.[851] UNIDROIT is still promoting the Space Protocol, with its delegate stating at LSC61 'As a Permanent Observer, UNIDROIT will now seek to involve itself further in the activities of the Committee, particularly with a view towards building on the importance of private international law in the space sector, as well as secured financing' and 'UNIDROIT continues its efforts to advance the understanding of the importance of an international system of secured transactions law for the space industry, particularly with the rise of private financing, as well as the fast growth of the NewSpace sector.'[852] However history will judge the Cape Town Convention and its Space Protocol, it is possible that they have already contributed by implicating multiple aspects of space law and telecommunications law, with potential conflicts and new synergies.[853] The practitioner simply cannot analyze and apply these instruments in a vacuum. In this regard Lyall and Larsen argued that, in spite of the Article XXX Space Protocol declaration that the Cape Town Convention as applied to space assets shall not affect state party rights and obligations under the existing outer space treaties or ITU instruments, their relationship will have to be considered as the new private international law treaty cuts across existing public law treaties, necessitating the demarcation of the new private law treaty from the public law space treaties.[854] The last-mentioned defines the scope and operation of the Space Protocol as it was accepted from the start that public law would prevail over private law, and in any event Article III of the Outer Space Treaty affirms that activities in outer space are subject to international law and the UN Charter. Moreover, there is a difference in scope in that the space law treaties apply only to space objects but none of them fully defines the term, whereas the Space Protocol

[849] Discussion Michael Newman, see note 844, *supra.*
[850] Sundahl, *supra* note 360, at 909.
[851] Hobe, *supra* note 6, at 123.
[852] Statement of UNIDROIT under *Agenda Item 5: Information on the activities of international intergovernmental and non-governmental organizations relating to space law,* available at https://www.unoosa.org/documents/pdf/copuos/lsc/2022/Statements/31MarAM/Item5/5_UNIDROIT_31_March_AM.pdf (last visited 31 March 2022).
[853] Sundahl, *supra* note 5, at 130-131.
[854] Lyall and Larsen, *supra* note 36, at 402-405, FN 84 and FN 86; Appendix D: Comparison Table Space Assets vs Space Objects.

applies to space assets and defines exactly what it is in Article 1(2)(k). To Lyall and Larsen, relying on the fact that LIAB Article I(b) includes component parts as space objects, in terms of the UN treaties these are space objects. Also, the absence of a registration of the space object within an appropriate state is irrelevant to the Space Protocol should the security interest be constituted while the space object is in space, but where the space object was registered in a domestic registry the UN Secretary-General has to be informed of particular data as to the space object. The need for registration of a space object in the state registry system may have other effects that could constrain the operation of the Cape Town Convention regime. States party to the Outer Space Treaty are required in terms of Article IV to authorise and supervise the activities of their NGO entities and bear international responsibilities for such activities as well as their own. The state licensing authority may be concerned about the arrangements for the financing of the enterprise including potential asset-based financing. Article VII Outer Space Treaty makes launching states internationally liable for damage caused to states or individuals, on earth or in outer space or on a celestial bodies, irrespective whether they are the state of registry. States will thus be fully liable for damages by both governmental and NGO entities they have licensed. Outer Space Treaty Article VIII reserves the jurisdiction of the state of registry, including jurisdiction of national courts. In the event of default in a security, those space objects may come to be owned and managed by creditors in other states over which the launching state has little control, and irresponsible management may result in substantial liability.

Lee's prophetic words of more than 20 years ago should be the lodestone for space lawyers: As our knowledge of outer space continues to expand and technology continues to progress, the need for new and adapted rules of international space law is rapidly growing.[855] Developing a new international framework of space law that provides legal clarity, commercial stability and technological adaptability is a vital and necessary step before our next giant leap in space. Arguably, should UNCOPUOS not do so, other IGOs will step in, as UNIDROIT had demonstrated with its Space Protocol.

[855] Lee, *supra* note 38, at 194-195.

Appendix A: Participation Observation

Foreign Ministry	Till December 2015: Drafted treaties as part of duties as a State Law Adviser in the South African DIRCO; Liaised directly with UNCOPUOS, UNIDROIT, ITU and ICAO.
SKAO	Since January 2016: In-House Legal Counsel of the then SKA Organisation, with a specific remit to negotiate and draft the treaties required to transition the SKA Organisation, a UK company into an IGO as the legal entity to drive the Square Kilometre Array radio-astronomy project, conceived to be the biggest global scientific project for the next 50 years. *Convention Establishing the Square Kilometre Array Observatory* entered into force on 15 January 2021, and currently has 8 member states.[856] As SKAO Head of Legal assisting multilateral negotiations on new membership and cooperation agreements; Arranging *ad hoc* and subsequent Permanent Observership of SKAO to UNCOPUOS; Leading SKAO delegations to STSC59, LSC61 and main Committee COPUOS65. Attend ITU Council sessions from 2016.
UNCOPUOS	Till December 2015: Attended and participated in, and provided South African delegations with international law advice at meetings of LSC and main Committee, but also as country representative to Expert Group D,[857] and later as friend to the South African chair Dr Peter Martinez, of the Working Group on LTS of the STSC.
UNIDROIT	Till December 2015: Part of the South African delegation to the March 2012 Berlin Diplomatic Conference to adopt the Space Protocol. UNIDROIT observer status application in the UNGA. Attended: - The Way to the Successful Completion of the Negotiations THE UNIDROIT SPACE PROTOCOL', *Symposium organised in Vienna on 8 April 2013 by the International Institute of Space Law and the European Centre for Space Law*. - Governing Council elections 2011 to 2015. - UNIDROIT General Assembly, and its Governing Council first as an observer and in 2015 as a replacement member. The South African representative on the Preparatory Committee of the Space Protocol to prepare for the International Registry for Space Assets to be created and its Working Group to develop draft regulations for the International Registry for Space Assets;[858] the Preparatory Committee of the Rail Protocol to prepare for the International Registry for Rolling Stock to be created.

[856] Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/818907/MS_27.2019_SKAO_Convention_Square_Kilometre_Array_Telescope.pdf (last visited 5 May 2022).
[857] A/AC.105/C.1/2014/CRP.16, Working report of expert group D: Regulatory Regimes and Guidance for Actors in the Space Arena. Appendix A: Participation Observation.
[858] Final Act of the Space Protocol, *supra* note 4, at Resolution 1.

	Observer on the UNIDROIT Ratification Task Force.
ITU	Till December 2015 on behalf of DIRCO; - Council Meetings - ITU Plenipotentiary Conference in Busan ('PP-14')PP14 From 2016 on behalf of the SKAO: - Council sessions - Working Group 7D of the ITU-R (radiofrequency interference)
ICAO	On behalf of DIRCO: - International law adviser to South African delegation to Legal Committee negotiations re the amendment of the Convention on Offences and Certain Other Acts Committee on Board Aircraft (Tokyo 1963).

Appendix B: Comparison Table UNCOPUOS vs UNIDROIT

Entity	**UNCOPUOS**	**UNIDROIT**
Instruments examined	**Moon Agreement, SDM, and LTS Guidelines**	**Space Protocol**
Type of International Organization	UN Committee tasked to review the scope of international cooperation in space activities; And study practical and feasible means that could be undertaken under the UN auspices to give effect to programmes in the peaceful uses of outer space.[859]	Independent intergovernmental organisation tasked to harmonise and co-ordinate private and commercial law as between states and groups of states and to formulate uniform law instruments, principles, and rules.[860]
Constitutive or Foundation Instrument	UNGA Resolution: Resolution 1472 (XIV) of 12 December 1959.[861]	Multilateral Treaty: UNIDROIT Statute.
No of State Parties when instruments examined were created	47 at MOON Agreement, 69 at SDM Guidelines, and 95 at LTS Guidelines.[862]	63 at Space Protocol.[863]
Purpose	UNCOPUOS was created to govern the exploration and use of space for the benefit of all humanity:[864] For peace, security and development. As such it was tasked with (1) Reviewing international cooperation in peaceful uses of outer space; (2) Studying space-related activities that could be undertaken by the UN; (3) Encouraging space research programmes; And (4) studying	UNIDROIT is to examine ways of harmonising and coordinating the private law of states and of groups of states, and to prepare gradually for the adoption by the various states of uniform rules of private law. [865] To this end it prepares: (1) Drafts of laws and conventions to establish uniform internal law, and drafts of agreements with a view to facilitating international relations in private law; (2) Undertakes studies in comparative private law; (3) Collaborates with other institutions; And (4) Organises conferences and publishes works.

[859] CoCoSL I*, supra* note 61, at para 13 Historical Background.
[860] UNIDROIT website, see *supra* note 382.
[861] See note 63, *supra.*
[862] Membership, *supra* note 77; note Christol, *supra* note 188, at 846, stated there were 52 Members when the draft MOON Agreement was accepted.
[863] UNIDROIT website, see *supra* note 382; See ApKruidjie20Roer20pendix A: Participation Observation.
[864] Available at https://www.unoosa.org/oosa/en/ourwork/copuos/index.html (last visited 23 May 2020).
[865] UNIDROIT website, see *supra* note 382; Articles 2(1) and 5 Statute, UNIDROIT REGULATIONS, *supra* note 393, at Article 14.

	legal problems arising from the exploration of outer space.	UNIDROIT occasionally enters the public international law field in areas where hard and fast lines of demarcation are difficult to draw or where transactional law and regulatory law are intertwined.
Negotiation or working Method	UN multilateral committee that works on the consensus principle without any voting during negotiations, and every Member of UNCOPUOS has a veto right.[866] UNCOPUOS is assisted by its two Sub-Committees the LSC and STSC, and the separate UNOOSA which acts as Secretariat. The MOON Agreement was negotiated in the LSC, but the SDM and LTS were drafted in STSC. At end of its annual deliberations UNCOPUOS drafts a report with recommendations to the Fourth Committee of the UNGA, and also recommends the draft text of treaties to UNGA. The Political Committee of UNGA considers this report before the recommended instrument is adopted by UNGA: Provides hereby opportunity to all Members of UNGA, specifically those not belonging to UNCOPUOS, to study and comment. Following the review of the work in the Political Committee, UNGA adopts a resolution incorporating the text	The Secretariat is the executive organ of the UNIDROIT and carries out its Work Programme. The Governing Council supervises the way in which the Secretariat carries out the Work Programme drawn up by the Governing Council. The Governing Council takes decisions by majority vote. The General Assembly is the ultimate decision-making organ, votes the Institute's budget annually and the work programme as recommended by the Governing Council. UNIDROIT (1) Cooperates with other IGOs, and (2) utilises its network of correspondents; In order to draft its instruments in two stages, namely (1) Preliminary, and (2) Intergovernmental.

[866] CoCoSL I, *supra* note 61, at paras 10-19 Historical Background.

	of the recommended treaty or the guidelines in an annex.	
Time took to Negotiate	MOON: 1966-1978 (12 years). SDM: 1993-2007 (14 years). LTS: 2010-2019 (9 years).	1997-2012 (15 years).
Time to enter into force	MOON: 1979-1984 (5 years).[867] SDM: Immediately. LTS: Immediately.	Not yet (after 10 years).
Types of Instrument	MOON: Multilateral Treaty. SDM: Soft law guidelines. LTS: Soft law guidelines.	Multilateral Treaty (not yet in effect and thus not legally binding).
Collaboration with other IGOs	UNCOPUOS can draw from expertise of specialized agencies UNESCO, FAO, ITU, WTO, COSPAR, ICSU, IAF, and the IISL and ILA.[868] LTS involved an NGO the SFW.	After 1996 UNIDROIT reorganized their drafting process to oversee the drafting of the base convention; Whilst the SWG continued with the Space Protocol with participation from manufacturers, financiers and operators of space assets, plus entities/IGOs UNCOPUOS, ESA, ECSL, and the IBA.[869] UNIDROIT participated in LSC meetings as an observer, and gave annual feedback on progress with the Space Protocol.

[867] A/AC.105/C.2/2019/CRP.3*, *supra* note 114.
[868] CoCoSL I, *supra* note 61, at Historical Background.
[869] Sundahl, *supra* note 5, at 25.

Appendix C: Comparison Table Cape Town Convention Protocols

Preamble	The first two Preambular Paragraphs in all three are almost identical, first considering it desirable to implement the Cape Town Convention as it relates to space assets/aircraft equipment/railway rolling stock, and conscious of the need to adapt the Cape Town Convention to meet the particular demand for and the utility of aircraft equipment/railway rolling stock/space assets and the need to finance their acquisition and use. The Aircraft Protocol has one additional Preambular Paragraph, referring to the Chicago Convention of 1944. The Space Protocol in Preambular Paragraph three stresses the benefits to all states to expand space-based services and financing, pays homage in Preambular Paragraph four to the UNCOPUOS and ITU Treaties but then confirms the pre-eminence of state party rights, and in Preambular Paragraph six recognizes the continuing development of the international commercial space industry.
Definitions	In all three Protocols the first sub-Article states that the terms used, except where indicated otherwise, will have the meanings set out in the Cape Town Convention. There are similar definitions for 'guarantee contract', 'guarantor', 'insolvency-related event', and 'primary insolvency jurisdiction'. The rest of the definitions Articles are industry specific.
Industry-specific applications	Article II in all three Protocols, with sub-Article 2 identical (designation), and sub-Article 1 being almost identical in indicating what the specific Protocol will apply to (aircraft objects in Aircraft Protocol, railway rolling stock in Rail Protocol, and space assets and rights assignments and reassignments in the Space Protocol).
Application	Article II in the Aircraft Protocol deals with the application of the Cape Town Convention to sales, and Article IV of the Space Protocol with the application pf the Cape Town Convention to sales and *salvage.* Article III of the Rail Protocol and Article XVI of the Space Protocol deal with *derogation.* Articles V in both the Aircraft- and the Space Protocols deal with *formalities, effects and registration of contracts of sale* and are almost identical: A contract of sale for an aircraft object or a space asset must be in writing, relate to an aircraft

	object or space asset of which the seller has power to dispose, and enable the aircraft object or space asset to be identified in conformity with the relevant Protocol. Sub-Article V(2) in both Protocols determine that a contract of sale transfers the interest of the seller in the aircraft object or space asset to the buyer according to its terms. Article VI in the Aircraft Protocol, Article IV in the Rail Protocol and Article VI in the Space Protocol handle *representative capacities*. Article VII in the Aircraft Protocol, Article V in the Rail Protocol and Article VII in the Space Protocol handle *industry specific object identification*. Article VIII in the Aircraft Protocol, Article VI in the Rail Protocol and Article VIII in the Space Protocol deal with *choice of law* in a similar manner. Article IX in the Aircraft Protocol, Article VII in the Rail Protocol and Article IX in the Space Protocol determine the *modification of default remedies towards each industry-specific object.* Article X in the Aircraft Protocol, Article VIII in the Rail Protocol, and Article XX in the Space Protocol, deal with the modification of provisions regarding *relief pending final determination.* *Insolvency assistance* appears in Article XII in the Aircraft Protocol, Article X in the Rail Protocol and Article XXII in the Space Protocol. Modification of *priority provisions* is dealt with in Article XIV of the Aircraft Protocol and Article XXIII of the Space Protocol. Modification of *assignment provisions* are dealt with in Article XV of the Aircraft Protocol and Article XXIV of the Space Protocol. Almost identically, Article XVI in the Aircraft Protocol, Article XI in the Rail Protocol and Article XXV in the Space Protocol handle *debtor provisions*.
Registry	The *identification of industry-specific objects for registration purposes* is dealt with in Article XIV of the Rail Protocol and Article XXX of the Space Protocol. *Registry provisions* are found in Article XX of the Aircraft Protocol, Article XV of the Rail Protocol and Article XXXII of the Space Protocol; *International registry fees* are dealt with in the same Articles, except Article XVI for the Rail Protocol
Supervisory Authority	Arranged in Article XVII of the Aircraft Protocol, Article XII of the Rail Protocol and Article XXVIII of the Space Protocol.

Relations	The *waiver of sovereign immunity* is in Article XXII of the Aircraft Protocol, Article XVIII in the Rail Protocol and Article XXXIII of the Space Protocol. Chapter V Article VI of all three Protocols set out *relationships with other Conventions.*
Final provisions	Signature, ratification, acceptance, approval or accession, regional economic integration organisations, entry into force, territorial units and declarations, are arranged for all Protocols in Chapter VI. Article XXVI of the Rail Protocol and Article XL of the Space Protocol arrange transitional provisions for those protocols.

Appendix D: Comparison Table Space Assets vs Space Objects

	Space Asset	**Space Object**
Orientation	Private & Commercial Law: The motive for creating the concept of space asset is rooted in the practical need for asset-based financing of the mobile space equipment; thus, the concept links with private financiers as creditors, which is mainly focused on the protection of the financiers' private security interest.	Public International Law: The undefined term space object is linked to sovereign states and their international obligations, responsibility, and liability.
Value	High-Valued; An asset by definition; Not non-reusable launch vehicle; Not space debris; Data, records, manuals of the related space equipment.	Not Applicable.
Approach	Probably both Spatialism & Functionalism.	Possibly Spatialism only as sub-Articles 5(3) Rescue Agreement, 1(b) Liability Convention and 2(1) Registration Convention require objects to be located in outer space.
Human Involvement	Manmade.	Manmade; Although Article 3(2) Moon Agreement implies the existence of non-manmade Space Objects.
Coverage	Spacecraft & Payload Component Parts of 'spacecraft or payload' Reusable launch vehicle Attachments	Space Object & Launch Vehicle Component Parts of the 'launch vehicle' ('RLV') Not Applicable

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