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Normative References to Non-Legally Binding Instruments in National Space Laws: A Risk-Benefit Analysis in the Context of Public International and Domestic Law

Alexander Soucek, Jenni Tapio*

1 Introduction

“The operator shall comply with internationally recognised space debris mitigation guidelines and standards.”¹ One has grown accustomed to this sentence, or any variation thereof, in recent national space laws.² Its message is one of paramount importance in light of the persisting problem of orbital debris; its form and legal consequences, however, prove problematic on closer inspection. Where national space laws refer to an unspecific ‘state of the art’ – thus anchoring predominantly technical norms and practices in positive law – it is necessary to ask who is to identify and legitimate individual choices as to the concrete parameters of behaviour, at what time and in view of which legal and practical consequences.

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1 This quote is a fictitious, generalised example of a license condition found in some national space laws.

2 The authors focus on recent national space laws *in Europe*. For the purposes of this paper, references to ‘national space law’, particularly in connection with licensing conditions, include descending instruments such as decrees and administrative decisions made *in casu*, where applicable.

The creation of non-legally binding norms is characteristic of the development of international space law in the ‘post-treaty’ era. The heterogeneous group of instruments of non-legally binding character that emerged in the past decades at international level – notably, but not exclusively, through the work of the United Nations (‘UN’) Committee on the Peaceful Uses of Outer Space (‘COPUOS’) – raises questions of theoretical and practical character, one of which will be analysed in this paper: the usage of normative references to such instruments in national space legislation.

1.1 The Technique of Normative Referencing

For the purposes of discussion and analysis in this paper, ‘normative referencing’ is understood as a legislative technique whereby a domestic legislator, in a given national space law, cites an external norm, or set of norms, with the intention to make the latter a constitutive or conditional element of the law, however without repeating or translating its content *into* the law.³

Normative referencing is a common legislative technique which seems of particular interest if the referenced, i.e. external, source norm is of a non-legally binding character; in that case, the normative reference may elevate a norm of non-legally binding character to the level of law, or vest it with legal effect.⁴ By giving legal effect to non-legally binding instruments through normative referencing, States have the power to transform non-legal sources into:

- a) legal *requirements* for the national authorisation and supervision process, for example to obtain a license; or
- b) legal *obligations* determining legal consequences for the norm addressees, such as an operator’s liability in case damage is caused during the conduct of its space activities.

Thus, even if the source norm is by definition not legally binding as to have direct legal consequences, and does in itself have no enforcement mechanism, the binding nature and enforceability can be achieved through normative referencing. In doing so, however, it should not be forgotten that the external source norm has originally been set outside the realm of law, conceived for a prime purpose other than being law or forming part of a legislative act, and that its language is specific to what it was originally intended for.

3 ‘Normative’ can be understood in two ways, either that the referral itself is of normative, that is: rule-setting character; or that the referenced source is a (legal) norm integrated, i.e. made applicable, through citation. The permissibility and the limits of normative referencing are subject to respective national laws and will ultimately depend on constitutional requirements.

4 Consequently, ‘normative referencing’ and ‘normative reference’ are used in relation to the technique and the actual referral norm to non-legally binding instruments.

As long as a given normative reference is specific and the source itself is specific, too, there is less room for uncertainty: what is to be observed as part of a legal obligation, or in order to respond to an administrative requirement (for example as part of a space mission licensing process), will be identifiable and, with a certain degree of likelihood, unequivocal.⁵ However, as soon as either the normative reference or the source norm are unspecific⁶ – and even more so if *both* are unspecific – the legislator builds bias that will, at least, have to be resolved⁷ in the individual process of authorisation and supervision but may, at worst, yield undesired consequences or questions of fundamental character: how does unspecific normative referencing comply with legislative requirements of being clear, specific and unequivocal?

1.2 Unspecific Referral to a Recognised ‘State of the Art’

One of the increasingly common requirements in national space laws is the adherence to ‘internationally recognised standards and guidelines’, compliance with which is one of the prerequisite conditions for the granting of authorisation for non-governmental space activities.⁸ The rationale behind this referral is based on the State’s need and incentive to ensure that important technical norms are complied with by non-governmental actors at least to the same degree as the State considers necessary to show diligence at international level. The State and the operator⁹ ultimately are in a

5 However, specific normative references can run the risk of creating uncertainty in the execution of the source norms, too, particularly if the latter have not been ‘designed’ for the purpose of being integrated within a legislative process or context. This will be further examined in section 5 of this paper.

6 For the purpose of this paper, the term ‘unspecific’ qualifies a) a reference norm not clearly and unambiguously identifying the source norm; or b) a source norm not clearly and unambiguously responding to the legislative requirements of a given national legal order, for example by giving recommendations, offering choices, lacking definitions or even employing definitions contrary to the ones used in the referral norm.

7 Typically, the act of authorising a non-governmental space activity under the framework set by a given national space law will consist of granting a license or a similar form of authorisation and represents an individual decision.

8 The frame set by Art. VI Outer Space Treaty leaves ample room for the national legislator to define the conditions of authorising and supervising the space activities of non-governmental entities. See for example: Gerhard, M., Article VI, in: Hobe, S., Schmidt-Tedd, B., Schrogl, K. (Eds.), *Cologne Commentary on Space Law, Volume 1: Outer Space Treaty*, C. Heymanns Verlag, Cologne 2009, pp.103-125, noting that “States do not need to implement formal legislation in order to comply with their obligation under Article VI sentence 2. Non-governmental activities can also be authorised by other means (...)” (ibid, p.119).

9 The term ‘operator’ is used throughout this paper as a generic term for ‘non-governmental space actor’, it being understood that the term may, in practice, have different meanings in the context of certain national space laws and depending on the definition and legal consequences assigned to it by the latter.

relationship of mutual dependence, because the operator is to be authorised and supervised by the State for carrying out space activities, but the State is responsible and liable under international law for those very activities undertaken by the operator. Normative referencing occurs, *inter alia*, for a range of predominantly technical ‘guidelines’ and ‘standards’ that have become essential tools for modern spaceflight. It is through the widespread application of such technical norms that the notions of ‘international recognition’ or ‘state of the art’ in respect to a given issue may crystallise over time.

This paper focuses on guidelines and standards in relation to space debris mitigation, for this group of non-legally binding instruments is identified as being at the centre of the practice of unspecific referencing in the recent past. In doing so, it attempts to provide novel insight into the application and development of space law, examining an increasingly important aspect of the interplay between public international law, national law and ‘soft law’.¹⁰

2. International Space Law and Non-Legally Binding Instruments

2.1 Observations on the Completeness of International Space Law

From the outset of the development of international space law, the question of its material completeness received a certain attention.¹¹ It was far from obvious whether the regulation of State behaviour should, or for that matter could, be comprehensive and detailed, or rather selective and high-level. The COPUOS considered in 1959, the year of its instalment as a permanent body,¹² that a comprehensive space law codification “was not practicable or desirable at the present stage of knowledge and development” and that “the rule of law is neither dependent upon, nor assured by, comprehensive codification”,¹³ thus laying out the path that would lead to what is known as ‘international space law’ today.

10 For the purposes of this paper, ‘soft law’ refers to non-legally binding instruments, which are not listed in the source catalogue of international law of Article 38(1) of the Statute of the International Court of Justice, entered into force 24 Oct. 1945; for more detailed discussion in the context of space law *see* for example various authors in Irmgard Marboe, *Soft Law in Outer Space: The Function of Non-binding Norms in International Space Law*, Böhlau Verlag, Wien, 2012.

11 Report of the Ad Hoc Committee on the Peaceful Uses of Outer Space, 14 July 1959, UN document A/4141, p.23, para.7, contained in: UN General Assembly Official Records, Agenda item 25, Annexes, New York 1959. See also: Jasentuliyana, N., Lee, R. (Eds.), *Manual on Space Law, Volume I*, Oceana Publications, New York: 1979, p.8.

12 UN General Assembly Resolution 1472 (XIV), International co-operation in the peaceful uses of outer space, adopted on 12 December 1959.

13 Report of the Ad Hoc Committee on the Peaceful Uses of Outer Space, 14 July 1959, UN document A/4141, p.23, para.7, contained in: UN General Assembly Official Records, Agenda item 25, Annexes, New York 1959.

The Legal Principles Declaration of 1963¹⁴ and the Outer Space Treaty of 1967¹⁵ decided the question of completeness and comprehensiveness in favour of an approach of ‘constitutional’ and ‘principal’ character. Such an approach was less of a surrender to the intricate technical reality of spaceflight than a pragmatic concession to the political and regulatory needs of the time: any approach to evaluating and interpreting space law must recognise the specific circumstances of its creation.

The space race competition as a subset of the Cold War between the supreme powers and their allies fuelled regulatory development as much as it forced certain requirements on the drafters of the *corpus iuris spatialis*. The unfolding technological revolution brought constantly changing realities against which to apply and judge the necessity, or effectiveness, of regulation. At the same time, outer space itself, including the Moon and other celestial bodies, was - and remains - the very object of discovery, a circumstance that must be considered in the analysis and interpretation of the legal language found in the UN space treaties. Finally, with humankind’s entry into a new dimension, literally, States were conscious that it was only through the normative force of law that a new, forward-looking legal order could be established from the outset.¹⁶ These were the ‘ingredients’ of space law-making in the middle of the 20th century.

Consequently, the preamble of the Outer Space Treaty emphasises predominantly “major motives and aspirations of States, as well as examples of previous practice”¹⁷ to set the backdrop of the treaty’s material content: “great prospects opening up for mankind” (para.1), “the common interest of all mankind” (para.2), “the benefit of all peoples” (para.3) or “the development of mutual understanding and (...) the strengthening of friendly relations between States and peoples” (para. 5). The preamble should however not lead one to misconstrue the Outer Space Treaty as a predominantly political instrument; in fact, it laid foundation to a distinct branch of public international law and may have transcended, in part, into the realm of customary international law according to widespread scholarly conviction;¹⁸ if customary force was to be

14 Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, UN General Assembly Resolution 1962 (XVIII) of 13 December 1963 (adopted without a vote).

15 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, done on 27 January 1967, entered into force on 10 October 1967, 610 UNTS 205.

16 Lachs, M., *The Law of Outer Space: An Experience in Contemporary Law-Making*, Sijthoff, Leiden: 1972, pp.21-22.

17 Hobe, S., Hedman, N., Preamble, in: Hobe, Schmidt-Tedd, Schrogl (Eds.), *Cologne Commentary*, Volume 1, p.21.

18 See for example: Lyall, F., Larsen, P., *Space Law. A Treatise*, Ashgate Publishing, Surrey 2009, p.54; Soucek, A., *Space Law Essentials*, Vol. 1 Textbook, Linde Verlag, Vienna 2015, p.27.

adjudged, the respective legal norms would be binding on all international law subjects:¹⁹ a powerful consequence.

Over the years, the Outer Space Treaty proved suitable and probably would still be regarded as largely sufficient, had spaceflight not profoundly evolved. What appeared as an effective solution in 1967 seems to have left certain questions unanswered half a century later. This observation is not necessarily the problem, or weakness, of the instrument itself, on the contrary. Those who conclude, perhaps prematurely, that the Outer Space Treaty is ‘outdated’ overlook the fact that it established elementary principles of a timeless character. The Outer Space Treaty was never intended to be a legal panacea, and least of all a technical standardisation exercise. Article III of the Outer Space Treaty exemplifies clearly the principle-based nature of that treaty: It requires State Parties to “carry on activities in the exploration and use of outer space (...) in accordance with international law, (...) in the interest of maintaining international peace and security and promoting international cooperation and understanding”; one cannot but assert this article’s fundamental importance, irrespective of the time that passed since its entry into force. But the exploration and use of outer space inevitably pose legal questions; some of those may require a progressive interpretation of existing international law or the development of new normative content.

2.2 From Treaties to Guidelines: the Emergence and Character of Non-Legally Binding Instruments

With various degrees of interest and effort, members of COPUOS have attempted to pursue a continuous development of international space law to keep up with the developments of spaceflight at large. The ‘treaty era’ in space law came to a gradual end in the course of the 1970s. Several factors have been identified as contributing to the decline of space treaty-making under the auspices of the United Nations.²⁰ Yet, the mandate of COPUOS²¹ required and enabled the continued examination of “legal problems which may arise from the exploration of outer space”²². At the same time, other actors and fora gradually became involved in establishing spaceflight-related norms of widely diverse material depth and character. As such, the ‘treaty

19 This is to be understood within the limits of the theory and practice of the institute of ‘custom’ itself.

20 This should not obstruct the view on the continued importance of international agreements in the space sector, namely as the basis for a multitude of international cooperation projects. The *Inter-Governmental Agreement (IGA)* for the establishment of the International Space Station (ISS) of 1998 is a case in point: a multilateral treaty established close to the turn of the millennium and being of eminent practical relevance for human space exploration, enabling long-term human presence in low Earth orbit.

21 UN Resolution 1472 (XIV) of 12 December 1959.

22 *Ibid.*, para.1(b).

era' gradually gave way to what some denote as the 'era of soft law' and what, more precisely, refers to the body of non-legally binding instruments pertaining to space activities.

The importance of non-legally binding instruments is rooted both in the genesis and character of space law and in the complexities of spaceflight. Beyond non-legally binding instruments developed under the auspices of the United Nations – particularly the annual UN General Assembly Resolutions endorsing the work of COPUOS, the 'Principle Declarations' and the 'Practice Resolutions' – predominantly technical norms and standards emerged at international level, unlike from UN resolutions in terms of addressees, purpose and normative content and typically originating from practical necessity, coordination interest or scientific, operational or environmental concern.

The category of 'non-legally binding instruments'²³ is not uniform. In fact, by establishing that very category one risks to blur the boundaries and limits of such instruments. Non-legally binding instruments are embedded in specific contexts and can significantly vary in character and content.²⁴ They will inevitably create different 'normative dynamics' at two levels concurrently: different from the traditional sources of positive law and different among themselves. Even when such instruments deal with the same subject matter and largely overlap in material content, the call for consciousness about their distinct characters is too often ignored. This should not be misunderstood as a problem of academic discourse alone: where non-legally binding instruments are incorporated into law by means of dynamic, often unspecific normative referencing, such distinctions may yield manifest problems in practice.

2.3 Inter-Relating Normative Sources: the Confluence of Regulatory Levels

The confluence of public international legal norms, national space law and non-legally binding instruments raises important questions of compatibility and interoperability. One of them is the extent of the permissible 'regulatory leeway' of national space laws in interpreting and developing international space law, or filling lacunae; this, in turn, relates to the increasingly discussed problem of normative fragmentation in space law.²⁵ Both concern the interrelation of international and national law.

23 To underline their international character and set them apart of non-legally binding texts originating from national or private level, such instruments may also be referred to as 'non-legally binding international instruments'.

24 See for example: Martti Koskenniemi, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law - Report of the Study Group of the International Law Commission* (The Erik Castren Institute Research Reports, Helsinki, 2007).

25 See for example Stotler, C., *Air and Space Law in the Context of Globalization and Fragmentation*, McGill University, Montreal 2015, p.103-115.

As a horizontal legal system by character, international law must reconcile the interests of sovereign subjects of law and has, therefore, an inherent interest in flexibility and reconciliation. As will be shown, national law starts from a different premise and must respond to different requirements. This is no revolutionary observation; yet it seems neglected at times. The situation becomes even more complex when non-legally binding instruments are added to the equation: depending on their character and context, they may have not been established to be applied or interpreted in a legal context. On the other hand, they may satisfy (or seem to satisfy) the legislators need for clarity and specificity, even the more so in the domain of space law where normative detail thins out with ascending normative hierarchy. Thus, the legislator is tempted to resort to technical norms for achieving clarity and specificity; in doing so, however, the opposite may result.

3. Space Debris Mitigation Guidelines and Standards as External Source Norms

Of all non-legally binding instruments, those relating to space debris mitigation are receiving particular practical attention owing to the potentially far-reaching implications of their subject matter. However, they differ in context and content from one another, a fact that unspecific normative referencing runs the risk to overlook.

3.1 'The Same but Different': Non-Legally Binding Space Debris Mitigation Instruments Compared

In the following, three²⁶ of the most commonly quoted non-legally binding space debris mitigation instruments are juxtaposed to demonstrate differences in their purpose and content: the Space Debris Mitigation Guidelines of the Inter-Agency Space Debris Coordination Committee ('IADC') of 2002, in their revised version of 2007 ('IADC SDMG'); the Space Debris Mitigation Guidelines of the COPUOS, endorsed by the United Nations General Assembly in 2007 ('COPUOS SDMG'); and the International Organization for Standardization ('ISO') Standard 24113 'Space systems – Space debris mitigation requirements' in its first edition of 2010 ('ISO SDMR').

Being materially interrelated, the three instruments were published in the course of eight years between the first and the last; they share common

26 The three instruments have been selected on the basis of their widespread use and citation in the context of space law practice, and because they represent different categories of non-legally binding instruments. It is understood, however, that this selection is not comprehensive and that there are other non-legally binding instruments dealing, directly or indirectly, with space debris mitigation at large. An important addition – albeit not endorsed in their entirety at the time of writing this paper – are the UN Guidelines on the Long-Term Sustainability of Space Activities.

purposes²⁷, definitions and language over large parts, cross-reference each other and, in consequence, appear to form a uniform category at first glance. Indeed, they are being increasingly referred to as ‘internationally recognised guidelines and standards (for space debris mitigation)’. Yet, what are the legal implications of such characterisation? Is the notion of ‘international recognition’ a defining or rather defying element in speaking of a supposedly uniform subset of non-legally binding norms? In fact, what appears to be uniform when observed from a distance reveals differences when examined in detail. While the effects and possible implications of unspecific normative referencing will be discussed in section 5 of this paper, the following analysis shows that differences among the three selected instruments can be demonstrated at least at three levels:

- a) *The context of their establishment*: The IADC SDMG are the result of a consensus decision of experts of thirteen governmental space agencies cooperating through a technical cooperation mechanism without legal personality, the IADC.²⁸ The COPUOS SDMG are the result of intergovernmental negotiations under a specific mandate through COPUOS and form part of a UN resolution endorsed by the UN General Assembly²⁹; they were elaborated under a four-year work plan of the Scientific and Technical Subcommittee of COPUOS, coordinated with the IADC, adopted by the Subcommittee, endorsed by the Committee and finally endorsed by the General Assembly through the *omnibus* resolution on “International cooperation in the peaceful uses of outer space” of 2007. In contrast, the ISO SDMR were drafted under the standardization mechanism of ISO and in accordance with the ISO/International Electrotechnical Commission (‘IEC’) directives by a technical committee³⁰ and submitted to the vote of ISO member bodies³¹.

27 See for example the purpose of the IADC SDMG, covering “the overall environmental impact of the missions with a focus on the following: (1) Limitation of debris released during normal operations (2) Minimisation of the potential for on-orbit break-ups (3) Post-mission disposal (4) Prevention of on-orbit collisions” (IADC Space Debris Mitigation Guidelines, IADC-02-01, Revision 1, September 2007, p.5).

28 “The IADC is an international forum of governmental bodies for the coordination of activities related to the issues of man-made and natural debris in space. The primary purpose of the IADC is to exchange information on space debris research activities between member space agencies, to facilitate opportunities for co-operation in space debris research, to review the progress of ongoing co-operative activities and to identify debris mitigation options.” (IADC Space Debris Mitigation Guidelines, IADC-02-01, Revision 1, September 2007, p.3).

29 UN General Assembly Resolution 62/217 of 22 December 2007.

30 ISO/Technical Committee (TC) 20, “Aircraft and space vehicles”, Subcommittee (SC) 14, “Space systems and operations”; see: ISO Standard 24113, p.iv.

31 Member bodies are national standardisation bodies with voting rights.

All three texts are of distinct origin developed in distinct circumstances. This does not mean that one instrument prevails over the other; yet, they are embedded in their specific contexts, they are the result of different dynamics and thus have to be used and interpreted in consideration of these contexts. This may seem an academic problem at first glance; however, as will be shown below, as soon as such instruments are made the ‘source code’ of normative referencing in national space laws, such differences may come to matter at a practical and even judicial level.

- b) *Their addressees*: The IADC SDMG are a description of “existing practices”³² generally addressed for the consideration “during planning and design of spacecraft and launch vehicles”³³; they are applicable to mission planning as well as spacecraft design and operation: “Organisations are encouraged to use these guidelines in identifying the standards they will apply in establishing (...) mission requirements”. Further: “Operators (...) are encouraged to apply these guidelines to the greatest extent possible.”³⁴ The COPUOS SDMG, due to the circumstances of their origin, take a different approach: they address “Member States and international organizations” who are called to “voluntarily take measures, *through national mechanisms or through their own applicable mechanisms* [emphasis added], to ensure that these guidelines are implemented”³⁵. Finally, the ISO SDMR’s key purpose is “the transformation of debris mitigation guidelines into engineering practice”³⁶, an approach which does not single out an overall addressee yet includes the notion of “approving agent”, i.e. entities “from whom approval is sought for the implementation of the space debris mitigation requirements”³⁷.
- c) *Their ‘normative’ character and content*: The most apparent differences can be found in the normative character and content of the three instruments, already manifest in their names. The IADC SDMG and the COPUOS SDMG are *guidelines* and characterised by a consistent use of the term ‘should’, a consequence of their advisory character; the COPUOS SDMG use the self-definition of a “set of high-level qualitative guidelines”, distinguishing them, with good reason, from their model predecessor, the IADC SDMG. Another aspect to be accounted for is the

32 IADC SDMG, IADC-02-01, Revision 1, September 2007, p.5

33 Ibid.

34 Ibid.

35 COPUOS SDMG 2007, section 3.

36 International Standard ISO 24113, Space Systems - SDMR, 2nd edition, 15 May 2011, p.v.

37 Ibid. (definition 3.1).

fact that the COPUOS SDMG have been endorsed by the UN General Assembly and thus may arguably evidence “state practice and state understanding.”³⁸ While both have to be distinguished from each other in terms of a normative perspective, the third instrument stands more evidently apart: The ISO SDMR are a *standard*, i.e. a collection of technical *requirements*. Consequently, the language used in the standard is more akin to a mandatory character, i.e. a ‘shall’ approach. It is important to underscore that the ISO SDMR are non-legally binding, too, yet they represent top-level requirements (‘shall / shall not’) against which to measure the technical implementation of a given spacecraft design, development or operation.

Although the content of the three instruments overlaps over large parts and they share a common purpose and object, there are discrepancies in their details. These discrepancies may seem small but they matter when linked with legal consequences, such as the decision to authorise a space activity or the determination of fault, at last. The three instruments are in fact not uniform, as illustrated by the following examples:

i. Example 1: orbital lifetime limitation in the LEO (protected) region

“Spacecraft and launch vehicle orbital stages that have terminated their operational phases in orbits that pass through the LEO region should be removed from orbit in a controlled fashion. If this is not possible, they should be disposed of in orbits that avoid their long-term presence in the LEO region.” (COPUOS SDMG, Guideline 6, para.1);

“Whenever possible spacecraft or orbital stages that are terminating their operational phases in orbits that pass through the LEO region, or have the potential to interfere with the LEO region, should be de-orbited (direct re-entry is preferred) or where appropriate manoeuvred into an orbit with a reduced lifetime. Retrieval is also a disposal option.” (IADC SDMG, 5.3.2, para.1);

“A spacecraft or launch vehicle orbital stage operating in the LEO protected region, with either a permanent or periodic presence, shall limit its post-mission presence in the LEO protected region to a maximum of 25 years from the end of the mission.” (ISO SDMR, 6.3.3.1).

ii. Example 2: debris release during nominal operations

“Space systems should be designed not to release debris during normal operations. If this is not feasible, the effect of any release of debris on the

38 Shaw, M., *International Law*, Cambridge University Press, Cambridge 2008, p.115.

outer space environment should be minimized.” (COPUOS SDMG, Guideline 1, para.1);

“In all operational orbit regimes, spacecraft and orbital stages should be designed not to release debris during normal operations. Where this is not feasible any release of debris should be minimised in number, area and orbital lifetime.” (IADC SDMG, 5.1, para.1);

“Spacecraft and launch vehicle orbital stages shall be designed so as not to release space debris into Earth orbit during nominal operations.” (ISO SDMR, 6.1.1.1).

iii. Example 3: on-orbit break-ups

“Spacecraft and launch vehicle orbital stages should be designed to avoid failure modes which may lead to accidental break-ups.” (COPUOS SDMG, Guideline 2, sentence 1);

“The potential for break-ups during mission should be minimised.” (IADC SDMG, 5.2, (1));

“The probability of accidental break-up of a spacecraft or launch vehicle orbital stage shall be no greater than 10⁻³ until its end of life.” (ISO SDMR, 6.2.2.1).

3.2 The Sofia Model Law and its Call for Referencing Space Debris Mitigation Instruments

To provide guidance in view of ever increasing non-governmental space activities, the International Law Association (‘ILA’) took the initiative to formulate a model national space law, the *Sofia Model Law*.³⁹ Recognising space debris concerns, the Sofia Model Law *inter alia* addresses the operator’s obligation to mitigate space debris “to the greatest extent possible”⁴⁰ and “*in accordance with international space debris mitigation standards*[emphasis added]”.⁴¹

39 ILA, “*Space Law*” Resolution No.6/2012 (“Sofia Model Law”); Frans von der Dunk, *European Space Law in Handbook of Space Law*, 181-184 (F.G von der Dunk & F. Tronchetti, Elgar, Cheltenham, 2015); Stephan Hobe, Kuan-Wei Chen, *Legal Status of Outer Space in Routledge Handbook of Space Law*, 39-41 (R.S. Jakhu & P.S. Dempsey eds, Routledge, Abingdon, 2017); it should be noted that a model law is not bound by the national requirements of legal drafting, and as a model law can leave any such issues to be dealt by the rulemakers in their national space laws.

40 Art. 8 (2) Sofia Model Law includes the obligation to limit debris released during normal operations, to minimize the potential for in-orbit break-ups, to prepare for post-mission disposal and to avoid in-orbit collisions.

41 Note that Art. 8 Sofia Model law refers to ‘standards’ only, not to ‘guidelines’, although both terms are to be distinguished.

Such, also the Sofia Model Law uses an unspecific normative reference. That reference does not clarify the subject matter and neither the object of compliance - there is no definition of ‘international space debris mitigation standards’ and no unequivocal international consensus as to what these instruments should be. The comment section of Article 8 of the Sofia Model Law informs the reader that “the competent national authorities *should make sure* [emphasis added] that operators comply with these international standards and guidelines, *such as* [emphasis added] the IADC Space Debris Mitigation Guidelines, the UN COPUOS Space Debris Mitigation Guidelines and the ILA International Instrument on the Protection of the Environment from damage cause from space debris”.⁴² It is unclear whether the exemplary list should be viewed as exclusive and/or exhaustive, and whether the quoted instruments have been selected as merely an illustration only or as the essential norms to be considered by a legislator. Again, room is left for the question of who, ultimately, has the mandate to decide which instruments belong in the group of ‘international space debris mitigation standards’ and what effect such decision may have.

3.3 Space Debris Mitigation as the Showcase of Normative Referencing: a Call of Time and Circumstance

Space debris mitigation has become a recurrent theme in national space laws, bespeaking the willingness of States to adhere to the respective non-legally binding instruments and/or the principles contained therein. This is particularly visible in recent European space laws, developed against the backdrop of new types of space activities, new space actors and a profoundly changed space economy (‘NewSpace’).⁴³ Novel and innovative ways of conducting the exploration and use of outer space, such as the possibility to order satellites and launches online with an affordable cost, generate questions to be addressed, and answered to, by the national authorities responsible and liable for those activities.

Albeit a global trend, the above described emergence of NewSpace actors and activities, is a rather different premise for ‘national’ space activities in comparison to States having their own governmental space activities and long-standing practice of consolidated private space activities. This difference

42 Sofia Model Law, Art. 8 “Comment”.

43 It should be noted that no set definition of ‘NewSpace’ exists. For discussion on ‘NewSpace’ and national space laws see for example, Irmgard Marboe, *National Space Legislation in Outer Space in Society, Politics and Law*, 440 (C. Brunner & A. Soucek eds, Springer-Verlag, Wien, 2011); Neta Palkovitz & Tanja Masson-Zwaan, *Orbiting Under the Radar: Nano-Satellites, International Obligations and National Space Laws*, in *Proceedings of the International Institute of Space Law 2012*, 566 (C. M. Jorgenson ed., Den Haag: Eleven International Publishing 2013); Jenni Tapio, *The Finnish Space Act: En Route to Promoting Sustainable Private Activities in Outer Space*, 43 *Air & Space Law*, (2018) 387-391, 387.

is likely to have an effect also in the legislative techniques regarding space activities. Hence, the States that do not yet have established national practices, are arguably more inclined to follow international guidance through international ‘soft’ law. However, normative referencing to non-legally binding international instruments for space debris mitigation is not only evident in recent, i.e. comparatively new space legislation: the technique is also employed by more established spacefaring States.⁴⁴

4. The Rationale and Limit of Normative Referencing in National Space Laws

4.1 The Rise of National Space Legislation

The structural specificities and development history of international space law not only led to the emergence of non-legally binding instruments, but also to the rise of national space legislation.⁴⁵ This is no deficiency of the international legal approach but, on the contrary, one of its ingrained characteristics. Article VI Outer Space Treaty can be taken as the most prominent example. It requires State Parties *to authorise and continuously supervise* the activities of non-governmental space actors. Doing so, it manifestly obliges governments to take legislative and executive action in order to respond to the treaty’s call. For decades, however, a large number of State parties did not, or merely, respond to the obligation of Article VI Outer Space Treaty, for – in the absence of non-governmental space activity under their jurisdictional influence – there was no practical necessity to take such action in the first place.⁴⁶

This situation is changing at a considerable pace as more and more governments are developing, implementing or updating national space legislation. The driving forces behind this development are manifold, from the rise and diversification of non-governmental space actors to the

44 See for example, ‘*The Space Debris Mitigation Standards Adopted by States and International Organizations*’ published under the UN COPUOS http://www.unoosa.org/documents/pdf/spacelaw/sd/Space_Debris_Compndium_COPUOS_5_sep_2018.pdf (accessed 15 September, 2018); a similar Compendium is the *Compendium on Mechanisms Adopted in Relation to Non-legally Binding United Nations Instruments on Outer Space*. <http://www.unoosa.org/oosa/en/ourwork/spacelaw/nlbcompendium.html> (accessed 8 August, 2018). It is noted that not necessarily all information concerning the license standards is made public, and in assessment of the legislative practise, resource can only be made to the policy and legal documents available.

45 Marboe, I., *National Space Legislation*, in: Brünner, C., Soucek, A. (Eds.), *Outer Space in Society, Politics and Law*, Springer, Vienna / New York 2011, pp. 439-440; Soucek, *Space Law Essentials*, pp. 54-57.

46 There is no principle or practice of what may be termed ‘precautionary legislation’, i.e. the establishment of national space legislation in the absence of national non-governmental space activities to be authorised or supervised.

corresponding need to secure and predict behaviour and allow an effective control of authorities, but equally owed to the realisation that predictable and favourable regulatory conditions may be an attractive force for industrial growth and a facilitator of strategic development. Thus, recent national space laws are as much tools for governmental supervision of space activities as they are space policy instruments. The relationships between the legislator and the executive as State actors and the operator as a non-State actor become increasingly interwoven.

Governmental authorisation and supervision require benchmarking by the competent authority as how to measure the behaviour of non-State actors. States must formulate, set and supervise administrative requirements, and this is where they may encounter practical problems.⁴⁷ Decisions *in casu* increasingly presuppose technical expert knowledge across a variety of relevant disciplines, both for determining the acceptability of a proposed space activity and for defining appropriate conditions suitable to both the operator and the public. Instead of establishing detailed administrative requirements from the outset – a legislative approach which is likely to exceed available resources and competences – the technique of normative referencing seems a reasonable compromise. But to what references can a legislator resort to?

There is little in the UN space treaties to refer to, for they themselves refer the development of details to the level of national legislation. In this situation, the legislator will have to resort to more precise content instead, namely to suitable non-legally binding instruments. By way of normative reference, the legislator can integrate those instruments, or parts thereof, into the realm of law, thus elevating them to building blocks of national law and awarding them regulatory force. But this doesn't come frictionless.

4.2 The Rationale for the Use of Normative Referencing

There are many reasons underpinning the technique of normative referencing. Arguably, its application is the (only) way to ensure the binding legal effect of non-legally binding norms. The technique also responds to the UN General Assembly's call upon States to include non-legally binding instruments in their national regulation of space activities.⁴⁸ Furthermore, it plays an important role for national authorities who are conceivably in need of specific rules to supplement the 'principle framework' of the UN space treaties. New spacefaring States in particular may look for guidance as they are yet to become familiar with technical and practical requirements of

47 This concerns particularly those States which have comparatively little experience and expertise in undertaking governmental space activities or in authorising and supervising non-governmental space activities.

48 For example expressed in UN General Assembly *Resolution 62/217 International Cooperation in the Peaceful Uses of Outer Space*, 22 December 2007 para. 27.

spaceflight. Yet, it can be examined whether this legislative technique fulfils the requirements of traditional national legislation of clear, specific and unequivocal (enough) obligations to guide and evaluate the operator's conduct, including determining its liability for damage at national level.

4.3 Observations on the Requirements of National Law-Making

The common legislative premise is that legally binding rules, specified as 'shall' and 'shall not' obligations in national laws, establish the limits of behaviour and consequences of disobedience vis-à-vis their subjects.⁴⁹ To what extent does the referral technique differ from the more traditional premise, and if it does, what are its effects?

The hierarchy of norms is a basic principle of 'rule of law', often stated in national constitutions.⁵⁰ Noting the public international law discussion on transnational rules, inter-legality and fragmentation of international law,⁵¹ the main theoretical argument forwarded in this paper in connection with the assessment of normative referencing is mainly based on the formal conception of the 'rule of law': "(...) laws thus promulgated should be capable of guiding one's conduct in order that one can plan one's life",⁵² including therein an inherent principle of legality, which in turn requires, even during the age of globalisation and at a minimum, the commitment that norms are "general, clear, public, predictable and stable".⁵³

Such a commitment is arguably necessary when norms touch upon important legal consequences such as the operator's liability for damage.⁵⁴ However, the

49 On the systematics of the international and national legal orders "...the national lawyer, especially in codification countries, hardly will be in doubt "where the law is found", nor will he have to indulge in contemplating questions such as "how does law come into being", or even "what is the nature of the phenomenon called law", Maarten Bos, *A methodology of International Law*, 1 (Elsevier, 1984).

50 See for example Section 2.3 § of the Constitution of Finland (731/1999, *as amended*).

51 See for example Martti Koskenniemi, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law - Report of the Study Group of the International Law Commission* (The Erik Castren Institute Research Reports, Helsinki, 2007) and Boaventura De Sousa Santos, *Toward a New Common Sense: Law, Science and Politics in the Paradigmatic Transition* (Routledge, New York, 1995).

52 Paul P. Craig, *Formal and Substantive Conceptions of the Rule of Law: An Analytical Framework*, 3 *Public Law*, (1997) 467, 469, discussing the legal theory of Joseph Raz.

53 Pekka Hallberg, *Rule of Law and Sustainable Development*, 99 (Rebellis, Tallinn, 2017).

54 "The language for a standard to be used in regulation should be clear, direct and precise. A standard written in language which 'recommends' is not likely to be suitable in a regulation if failure to comply could result in prosecution", Standards Council of Canada, *Key Considerations in the Development and Use of Standards in Legislative Instruments*, section 4.2.6, page 5 (2006). https://www.scc.ca/sites/default/files/migrated_files/DLFE-476.pdf (accessed 16 August, 2018).

substance of the legislative action, such as the goal to mitigate space debris, can nevertheless be appraised.

4.4 Observations on the Limits of Normative Referencing

Normative referencing is subject to the respective national law-making rules, which ensure that the subjects of the legal system can find and examine the source, and are aware of the normative hierarchy between the rules. The essence of law and the character of the rules contained therein can be summarised as follows: “law, as the rule of human conduct, and international law, as the rule of the conduct of the states, require certainty of application and clarity of the subject matter.”⁵⁵ This underlines the traditional normative values of *legality* and *legal certainty*. The examination of the technique of normative referencing, in the light of these values, reveals an interesting interaction between international and national legal systems, as well as their differences. Arguably, a private operator, subject to a national legal system, has different requirements as to the preciseness and content of legal obligations than States interacting at international level. This distinction poses questions both at immediate and long-term level, and both legally and practically.

National space laws, despite being viewed as contributions to the *corpus iuris spatialis*, are also embedded in their specific national legal systems, each of which having distinct requirements for the creation, application, interpretation and enforcement of legal norms. Interlinking this premise with the heterogeneous nature of non-legally binding instruments, makes it difficult for a legislator to arrive at a formalistically watertight normative reference. This would essentially require that a decision is taken by the national norm-maker to clearly single out the applicable instrument(s) it has chosen from the variety of non-legally binding instruments to form the basis of the respective law. The result of an unspecific normative reference, however, is that the choice is left either to the executive applying the law, to the operator having to comply with the law or, ultimately, to the judge interpreting the law.⁵⁶

55 John.C.Cooper, *The Rule of Law in Outer Space*, Vol. 47 American Bar Association Journal, (1961) 23, 23.

56 For example enforcing a State’s right of recourse based on the operator’s fault for damage caused. The extent to which a national judge may resort to ‘non-legal documents’ is a matter of the national legal system, see Daniel Bodansky, *Legally Binding versus Non-legally Binding Instruments*, in *Towards a Workable and Effective Climate Regime*, 159 (S. Barrett, C. Carraro & J. de Melo, eds., VoxEU eBook, 2015).

5. The Effects of Normative References to Non-Legally Binding Instruments

As shown above, the dynamics of non-legally binding instruments differ among each other; altogether, they differ from both international and national legal norms. Whether or not such differences matter, is a problem of application. An increasing number of legislators, however, seem to refer such questions to the executing authorities or even the addresses of national space legislation. Whenever non-legally binding instruments are elevated and linked to a given legal system, their inherently different dynamics therefore run the risk of becoming a source of uncertainty.

5.1 'Make Your Own Rules': the Choice of Applicable Norms

Normative referencing may result to a seemingly clear requirement for the operator to mitigate space debris. But the result may as well become discretionary and thus prone to relatively easy bypass – either because the object of compliance is not clearly stipulated or the requirement is expressed in 'soft' terms, or both. This is a consequence which may, from the State's perspective, result in missing out on the desired effectivity of regulating non-governmental behaviour, mitigating space debris and ultimately allowing the identification of fault on part of the operator.

Being diligent is not an 'obligation to achieve a result',⁵⁷ thus even with diligent behaviour good results, i.e. the avoidance of debris (or damage) caused by space objects, cannot, or need not, be guaranteed. Arguably, an unspecific normative reference may on its own result in an aspirational 'should' requirement, a non-requirement unfamiliar to the formal national legal systematics. Such a requirement can plausibly only be viewed as a 'best effort' condition,⁵⁸ unfamiliar as a legislative requirement, and one for which it is difficult to attest legal consequences in case of perceived non-compliance. Based on the above, it may be argued that operators faced with unspecific requirements will *de facto* establish their own requirements or standards

57 With regards to the State's due diligence obligations under IX of the Outer Space Treaty being a 'obligation of conduct rather than of result', see Ulrike M. Bohlmann, *Connecting the Principles of International Environmental Law to Space Activities in Proceedings of the International Institute of Space Law 2011*, 303 (C.M. Jorgenson ed, Eleven International Publishing, Den Haag, 2012); for mentions of 'soft obligations' in space treaties, see Cassandra Steer, *Sources and Law-making Process in Routledge Handbook of Space Law*, 19 (R.S. Jakhu & P.S. Dempsey eds, Routledge, Abingdon, 2017).

58 The legal concept of "best efforts" under the common law jurisdictions differs from that of the civil law, see for example Nicholas Puschman, *Contract Law and the Space Industry: "Best Efforts" and the Emergence of Environmental Sustainability Provisions in Proceedings of the International Institute of Space Law 2016*, 125-140 (P.J. Blount, T. Masson-Zwaan, R. Moro-Aguilar & K-U Schrogl eds, Eleven International Publishing, Den Haag, 2017).

based on the individual circumstances. This may lead to fragmentation as to how the requirements are recognised and adhered to, creating varying approaches even amongst the national operators and ultimately leading to legal uncertainty as to the common requirements of a space activities license. Additionally, non-specificity in the requirements may raise legal and practical questions as to how the operator recognises them in planning a mission in a commercially meaningful way, in compliance with the relatively unspecific obligation in the national law, and to a degree which ultimately could be established *ex post* in the national courts applying the relevant national laws.

5.2 From 'Soft' International Norms to Binding National Norms

A national legal system is organised in accordance with certain systematics of normative hierarchy and sources of law to be used and applied. The need to identify the legal character of non-legally binding instruments that have been incorporated at national level stems from this premise. But not even the current formal systematics of international law recognises 'internationally recognised standards and guidelines', 'soft law', or 'non-legally binding instruments' as forming a distinct source of law category.⁵⁹ Could a mere normative reference to a non-legally binding instrument in a national space law bypass that route, and make the referenced international instrument *de lege lata* of a State elevating those 'rules' to the level of law?

5.3 The Interpretation of Referenced 'Soft' Law

Non-legally binding instruments do not contain *legal* rules; their contents are not drafted in a manner to comply with the traditional formalistic requirements set for national 'black letter' laws, which may cause uncertainty as to the obligation contained therein.⁶⁰ To overcome the shortcomings in determining legal obligations and their consequences at national level, the non-legally binding instruments should be coupled with a strong and clear normative reference. A task, which is challenging due to the very nature of the non-legally binding instruments, their maker, and the associated

59 Noting that the current organisation has been subjected to critical assessment, *see* for example Van Hoof, G. J. H., *Rethinking the Sources of International Law*, 66 (Kluwer Law and Taxation Publishers: Deventer, 1983); Also, *see* László Blutmann, *In the trap of a legal metaphor: International Soft Law*, 59 *International and Comparative Law Quarterly* (2010), 605, 606, arguing that 'soft law' could be included within the sources albeit absence of legally binding character.

60 *See* for example Organisation for Economic Cooperation and Development ('OECD') reference checklist for regulatory decision-making, and in particular the question "is the regulation clear, consistent, comprehensible and accessible to users?" OECD, *Recommendation of the OECD Council Improving the Quality of Government Regulation* OECD/Legal/0278, adopted on 9 March, 1995.

processes, which are not always compatible with the ways of traditional rulemaking and enforcement.⁶¹

As illustrated in section 4, the group of non-legally binding instruments is not uniform, an issue often neglected in national space laws employing generic, and thus unspecific, references to ‘internationally recognised standards and guidelines’ as the object of compliance, ultimately linking the adherence to them with the operator’s liability for damage, as the non-legally binding instruments are said to “represent the ‘state of the art’ and establish a standard of care or of due diligence”.⁶²

In contrast to traditional legal rules, the ‘rules’ contained in non-legally binding instruments can be interpreted differently by different stakeholders, and their implementation effectively depends on compliance, not enforcement.⁶³ In this context, semantic generality in the language of a non-legally binding instrument is understandable, especially with regard to more ‘policy-oriented’ instruments, which need to establish consensus among a large number of stakeholders, thus requiring compromises to satisfy the parties concerned. This premise is already drifting afar from the foundations of national requirements for legislative drafting, which require that the legal instrument should be such to enable an objective analysis of its contents, including the obligations therein. Should the national legislator not therefore identify those non-legally binding instruments that it wishes to uphold, and translate them in a way that meets the requirements of specificity and clarity under its respective national law, instead of merely flowing international ‘soft’ law down *in toto* through normative referencing?

With regards to predominantly technical standards, such as the International Standard ISO 24113, the non-specificity is of a very different kind: what is detailed and clear in engineering terms⁶⁴ does not have *per se* the necessary qualities of legal text. What are the tools of legal interpretation that should be used in supplementing or interpreting such non-legal instruments, for

61 An example of clear referencing is a direct reference to a specific edition (and date) of a standard to be used, *see* ISO & IEC, *Using and Referencing ISO and IEC Standards to Support Public Policy*, especially Section 4. <https://www.iso.org/sites/policy/documents/Using%20and%20referencing%20ISO%20and%20IEC%20standards%20to%20support%20public%20policy%20-%20EN.pdf> (accessed 20 August, 2018).

62 Irmgard Marboe, *The importance of Guidelines and Codes of Conduct for Liability of States and Private Actors*, in *Soft Law in Outer Space*, in *Soft Law in Outer Space: The Function of Non-binding Norms in International Space Law*, 120 (I. Marboe ed, Böhlau Verlag, Wien, 2012); it should be noted that not all national space laws distinguish between objective and fault liability for different types of damage, *see* for example Belgian Law of 17 September 2005 on the Activities of Launching, Flight Operation of Guidance of Space Objects.

63 Francis Lyall, *Space Law: A Treatise*, 51 (P.B. Larsen ed, Routledge, 2009).

64 ISO 24113 is the most detailed and precise of the existing non-legally binding instruments on space debris mitigation; primarily, it is a technical *standard* as opposed to a collection of guidelines.

example in determining whether a legal obligation (such as due diligence) is complied with, or not.⁶⁵ The traditional rules of legal interpretation cannot provide assistance and no other rules of interpretation are available, neither at international nor at national level. Nevertheless, those instruments might actually become the measure of establishing faulty behaviour – a consequence arguably beyond what drafters had originally envisaged as their goal and purpose. However, where technical requirements are coupled with a clear normative reference – i.e. identifying the specific external instrument, the normative framework as well as the consequences of non-compliance –, the issue of referring to non-legally binding instruments no longer is an issue of legal certainty.

5.4 Compatibility and Interoperability of Referenced Norms

There is more to be said in this regard. The State operates under public international law as well as national public law, which also governs the licensing and supervision of the operator's activities. The relationship between the State and the operator is in general non-contractual, based on an administrative decision, *i.e.* the act of awarding a license: an act governed by national public law. Also, in the case of damage caused by the operator's space activities, the resulting relationship concerning the operator's liability based on the State's right of recourse will be subject to national laws. Arguably, even if these various rules would be included in the same legal system, public and private domains nevertheless have differing, but not necessarily conflicting, *rationales*.⁶⁶ They are made to serve different purposes - a non-negligible undercurrent influencing their application.

5.5 The Enforcement of Referenced Norms

Non-legally binding instruments do not generally contain enforcement provisions, in line with their character as voluntary instruments. As a consequence of normative referencing, national legal mechanisms may become applicable in relation to the referenced non-legally binding instruments, resulting in originally non-legally binding 'rules' to possibly be subjected to enforcement through administrative or judicial proceedings.

65 Legally non-legally binding instruments are not treaties, and thus are not be interpreted in accordance with the Vienna Convention on the Law of Treaties, *see* the United States Department of State, *International Documents of Non-legally Binding Character*, referencing the Report of International Law Commission ('ILC') to the UN General Assembly (1959 2 Y.B. Int'l Law Comm, 96-97 (1959) <https://www.state.gov/documents/organization/65728.pdf> (accessed 1 July, 2018).

66 It has been noted that the drafters of the ILA Model Law did have "an international law perspective and not national perspective upon the aim to be achieved", thus favouring "specific solutions and use of clearer language" "particularly evident in the provisions on the protection of environment and the avoidance of space debris", Irmgard Marboe, *National Space Law in Handbook of Space Law*, 186 (F.G. von der Dunk & F. Tronchetti, Elgar, Cheltenham, 2015).

Such consequence is of particular importance in the context of damage incurred in private space activities, where non-legally binding instruments will have an effect on establishing the operator's liability in national enforcement proceedings.

This interconnection between the national judicial system and non-legally binding international instruments is mostly due to the fact that in establishing fault-based liability at national level, reference to certain behavioural standards has to be made. Such standards, however, are not necessarily readily available at national level, especially in new spacefaring States. Considering the global nature of space activities, purely national instruments might not even be desirable.⁶⁷ Thus, recourse there has to be made to international instruments, at the risk that there is no clearly identified 'gold standard' to be the focus for the diligent conduct of space activities; nor is there a single instrument to turn to when searching for 'the' model for the diligent mitigation of space debris.

5.6 Normative Referencing in the Light of a State's International Responsibility for Non-Governmental Space Activities

Article VI of the Outer Space Treaty not only establishes that State Parties to the Outer Space Treaty shall bear international responsibility for 'national' activities in outer space and for assuring that they are carried out in conformity with the treaty's provisions, but also that the activities of non-governmental organizations shall require authorization and continuing supervision by the appropriate State Party. This is one of the central norms of international space law, for it links the private operator's activity directly to the State's accountability under international law, suspending traditional mechanisms of attribution and State responsibility.⁶⁸ Where it is the obligation of the government to ensure that non-governmental space activities are carried out in conformity with the State's international obligations, the nature of non-legally binding instruments is of concern in two directions: first, for the question on how far the State's obligations effectively go, and second, for the choice of how specifically to direct, or determine, the operator's actions.

⁶⁷ It is noted, that an emerging legislative technique is to add specific provisions in connection with the normative reference, which may touch upon the same or similar rules as in the referenced instruments, but yet employ somewhat differing textual formulations, *see* for example Finland: Article 3§ in the Decree on Space Activities (23.1.2018/74); Austria: §4.1.c in the Regulation of the Federal Minister for Transport, Innovation and Technology in Implementation of the Federal Law on the Authorization of Space Activities and the Establishment of a National Space Registry (Outer Space Regulation) BGBl. II; No. 36/2015; Denmark. 6.(2) in Executive order on requirements in connection with approval of activities in outer space etc.

⁶⁸ Gerhard, Article VI, in: Hobe, Schmidt-Tedd, Schrogl, *Cologne Commentary, Volume 1*, pp.103-125.

The modalities and deterministic effects of national space legislation vary, but it seems valid to assert that a higher degree of unspecific normative referencing will lead to a lesser degree of authoritative control, unless this effect is compensated through sufficiently specific administrative decisions.⁶⁹ This is not only a question of political interest or legislative elegance: the grade of clarity of normative content may have a direct legal bearing on both the State and the operator. This almost dialectic relationship becomes manifest when contextualising it against the background of international responsibility and liability, with the latter furthermore broken down to the level of the operator's liability under national law. If a State issues ambiguous guidance in the form of unspecific referencing (for example requesting best effort adherence to the 'state of the art'), is it adequately and effectively authorising and supervising non-governmental space activities? Clarity and predictability of national law are ostensibly no problem of international law, rather of constitutional and administrative law. When it comes to the question of liability, however, the problem becomes more tangible.

5.7 Liability for Damage: a Test Case for the Effects of Unspecific Normative Referencing

Article VII of the Outer Space Treaty and Article III of the Liability Convention⁷⁰ establish fault-based liability for damage caused by space objects in outer space; the requirement of 'fault', aside from being unusual in international law, requires resorting to benchmarks against which to measure, and thus establish, fault. Applicable non-legally binding guidelines and standards would ultimately have to be used in determining whether actions or omissions could be qualified as constituting fault, consequently whether or not an operator is to be held liable for damage and would, in a further instance, be subject to a State's right to recourse for compensation paid to another State at international level. Even in the case of absolute liability for damage caused on the surface of Earth or to spacecraft in flight, the problem at the State-operator level may be similar; while the liability triggered is 'absolute' for the State at the level of international law, it may not be absolute in terms of vertical regress at domestic level.

In both cases, the question of the recoverability of damage by a State from an operator is thus linked to the application and interpretation of non-legally binding instruments. The answer to a seemingly straightforward question like '*Did the operator comply with the current state of the art in space debris mitigation?*' will depend on the content of the actual instrument that is judged to contain, or constitute, that very 'state of the art' - but judged by

69 On the other hand, it allows for more administrative flexibility.

70 Convention on International Liability for Damage Caused by Space Objects, adopted on 29 November 1971, entered into force on 1 September 1972, UNTS 961.

whom, and at which point in time exactly? Here, at last, the problems of clarity, identifiability and predictability are back.

6. Balancing Legal Certainty and the Benefits of Normative Referencing

6.1 The Pressing Issue of Legal Certainty

Especially at a time of a growing number of space actors and activities, including those of the private sector, successful and effective implementation of international non-legally binding instruments through national space laws require that the notions contained therein are made binding and enforceable to ensure that space actors comply with them, affording national authorities to attach both legal and practical consequences for the non-compliance with 'soft' instruments. Arguably, this is not an easy task, as even distilling the essential elements from this group of heterogeneous non-legally binding instruments of varying policy and technical characteristics can be a difficult exercise, especially to new spacefaring States.

In case States consider that the policy goals reflected in non-legally binding instruments should be adhered to by their national subjects, the creation of binding and enforceable legal rules through normative referencing is arguably necessary. This is especially so as, in general, private entities - companies in particular - have a different *modus operandi* from that of States. While a 'soft rule' may be enough at international level to incentivise a State to comply with it, that same 'soft rule' will need to be translated into a 'shall' requirement for private entities if their compliance is not only desired but to be ensured. On the other hand, clean Earth orbits are also vital for safe and sustainable private space operations, and interesting business opportunities emerge both with the mitigation and remediation of space debris. This undercurrent on its own is likely enough to motivate some private entities to achieve the same objective (i.e. the mitigation of space debris). The shared goal, even if pursued for different reasons, makes it more likely that the overall target is reached after all.

Currently, the creation of non-legally binding 'tools for persuasion' as opposed to binding legal instruments represent the practise at international level. However, the encouragement to include those non-legally binding instruments in national space laws as normative references, can be said to include therein an inherent consideration that actually coercion ('sticks approach') is needed - recognising that gentle pressure through a 'carrots approach' may not be enough to reach the very objectives of the non-legally binding instruments.⁷¹ However, the route to binding effect through

71 The 'carrots and sticks' rhetoric applied in relation to 'soft law', see Jan Klabbbers, *Reflections on Soft International Law in Privatized World*, in *Finnish Yearbook of International Law Vol. XVI*, 315 (J. Klabbbers & T. Tuori eds, Brill Nijhoff, Leiden, 2008).

normative referencing in national laws does not come without formal legal concerns. In recognition that clear requirements are of mutual benefit for both parties, responsible and liable for the same space activities in their respective domains, the rule-maker in its capacity should consider making a choice as to which standards are important for adherence and in this way enable the companies to act responsible within their sphere concentrating in value creation within the set limits. As mentioned, the ambiguity in the requirements is not necessarily an everyday operational concern, as the serious legal implications of responsibility and liability are only triggered when things do not go as planned.

The effects of unspecific normative references may be aggravated by an additional element of legal uncertainty, namely the use of ‘soft’ language in defining the referral norm’s imperative: “seek to ensure compliance” or “should adhere to” are instructions which in themselves leave room for questioning the degree of required normative compliance: “while the obligation is binding, it is weak”⁷² - a somewhat surprising and certainly unconventional character for a legal norm.

6.2 Alleviating Uncertainty: When and How to Determine Behaviour

There is no guidance as to how the parties⁷³ faced with an unspecific normative reference to non-legally binding guidelines and standards should deal with it. In the absence of clearly identified, and identifiable, sources provided for in the international or national legal reference frames, the individual decision⁷⁴ and its specific content will carry the burden of clarity and predictability.

The effective link between the State’s behavioural guidance and the operator’s behavioural response is the act of authorisation, i.e. the convergence of normative context and practical considerations into an individual decision. It is here that the requirement of specific and unequivocal direction will have to be adequately implemented at last. This is not only because the State has an interest in securing the parameters of the operator’s action, but also because the administrative frame set may have profound practical effects on the operator. It makes an important difference for an

72 The quotation was made in relation to the ‘due regard’ obligation to the interests of other States contained in Article IX of the Outer Space Treaty in Cassandra Steer, *Sources and Law-making Process in Routledge Handbook of Space Law*, 19 (R.S. Jakhu & P.S. Dempsey eds, Routledge, Abingdon, 2017); see e.g § 5 of the Austrian Outer Space Act Federal Law on the Authorization of Space Activities and the Establishment of a National Registry (Outer Space Act), BGBl. I No. 132/2011 requiring “appropriate provision”, or Section 10 of the Finnish Act of Space Activities (63/2018) with its notion of “shall seek to ensure”.

73 i.e. the executive as the authority and the operator as the individual addressee.

74 Individual decisions by national authorities would typically include licenses granted for the launch and operation of non-governmental space missions.

operator developing a space mission to choose one technical requirement over another; for example, whether a satellite's probability for accidental in-orbit break up "should be minimised" (IADC SDMG, 5.2, (1)) or "shall be no greater than 10⁻³ until its end of life" (ISO SDMR, 6.2.2.1) is no interchangeable 'policy goal' but an engineering choice that will translate, ultimately, into cost.

So, there is a necessity in the process of authorisation and supervision of space activities to make choices and approve of choices made, for example for one of several similar but not identical space debris mitigation instruments. However, if the opportunity for reaching clarity and predictability through the authority's decision is missed, the risk of undesired consequences increases further, for if the choice is not made by the authority granting the license, it is either left to the operator - or, ultimately, to a judge. And while the first resort, the operator's choice, may cause uncertainty to the authority primarily, the last resort - the judge's choice in case the matter is taken to court - is the 'ultimate uncertainty' from the perspective of both the norm-maker (legislator), the norm-applier (licensor) and the norm's ultimate addressee (licensee).

One shall not forget that some non-legally binding instruments call upon State actors to specify or even establish normative content. Such, the IADC SDMG encourage "[o]rganisations ... to use these Guidelines in identifying the standards that *they will apply when establishing the mission requirements* [emphasis added] for planned spacecraft and orbital stages"⁷⁵. Again, the individual decision would afford an opportunity for a governmental authority to follow this call - if not done so already by the legislator.

6.3 On the Benefits of Normative References to the 'State of the Art'

The risks and potential consequences of unspecific references to non-legally binding instruments in national space laws have been discussed in detail in this paper. The decisive question, however, is: Does the norm-maker, i.e. legislator, have a choice really?

In a field such as space debris mitigation, where the absence of normative guidance at the level of international law and the need for specific expertise at technical level come together at once, it is difficult - if not downright impossible - for the legislator to identify or establish the required 'state of the art' *ab initio*, except for those which can resort to the required expertise and knowledge at national level and thus are in the position to circumvent the issue of resource availability. Important efforts at various international forums and levels have gone into establishing the rationales and prime requirements for the mitigation of space debris, as has been laid out under section 3. above; it would seem a redundant, if not uncertain, exercise to

75 IADC SDMG, Chapter 2, sentence 2, p.5.

duplicate these efforts with limited resources at national level, rather than to profit from their existence and availability.

Second, unspecific normative referencing – if applied within the limits set by what is legally required and practically desired – provides for flexibility both for the executive and the operator concerned. Giving an operator ‘free hands’ as to the choice of the guidelines or standards to be considered, for example in the field of space debris mitigation, allows tailoring requirements to available resources, and *vice versa*. However, such choice will have to be framed and accepted by the governmental authority, for in the absence of such acceptance, the positive effect of flexibility may be outweighed by the risk of legal uncertainty.

There is a third reason to assert that the legislative technique of normative references to non-legally binding guidelines may yield positive effects that outweigh the associated risks: The repeated reference to the ‘state of the art’ as expressed through ‘internationally recognised guidelines and standards’ can ensure a somewhat uniform approach to addressing a given problem; moreover, it supports and solidifies the notion of international recognition of such guidelines and standards, not last through the State itself employing that very notion in its national legal framework. If the requirements of why and how to mitigate space debris were left to each individual legislator at national level instead, the risk of fragmented, perhaps even contradicting approaches would increase. Such, the proliferation of resorting to an internationally recognised ‘state of the art’, as vague as such reference intrinsically may be, could be a primordial element of custom in relation to the cross total of space debris mitigation practices, through the emergence of both *opinio iuris* and State practice.

7. Concluding Remarks

Normative references to non-legally binding instruments may ultimately rather be an ineluctability than a mere choice, at least for the majority of legislators: first, in the absence of *legally binding* instruments at international level; second, in the absence of resources at national level to compensate for the first absence. But one has to be aware that this legislative technique comes with important risks, as has been shown in this paper. Those risks accrue both for the legislator, i.e. State, and the non-governmental operator of space activities, and they will have to be mitigated in order to avoid undesired consequences. If law is to be understood as managing the expectations of those creating it and those being submitted to it, likewise, then it must be specific enough to allow predicting, identifying and following the very behaviour it is designed to regulate. Anything less may run the risk of becoming a blueprint for the frustration of normative power.