The Fragmentation of International Space Law

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Abstract

Since 2005 a growing number of states have adopted national space legislation to ensure adherence to international obligations, clarify rights under international space law, and promote regulatory certainty for space activities under their jurisdiction. While a certain degree of similarity is seen in the interpretation of these international obligations, the purpose of this paper is to demonstrate that diverging interpretations on a national level already exist. The interpretations that are reflected in national space legislation are often contextual and products of national space capabilities and ambitions. As such the Report of the Study Group of the International Law Commission on the Fragmentation of International Law regarding competing *lex specialis*, each with its own purpose and reasoning, will be discussed by analogy to provide insight into the processes and consequences of fragmentation of international law through diverging interpretations. Thereafter, this paper will present a brief comparative study on the scope of various national space legislation. This study will highlight variations in the interpretation of what it means to "carry out a space activity" under Article VI OST. Particular attention will be given to *who* is defined as carrying out a space activity and *what* is defined as a space activity. The conclusion will underline a need and urgency for coordination in the interpretation and application of space law, which is both beneficial and necessary to avoid the negative consequences of the fragmentation of international space law.

1. Introduction

This paper will draw upon the literature on the fragmentation of international law to argue that such fragmentation is taking place within the system of international space law. As such, this paper will first argue that fragmentation within the system of international space law can materialise in

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two ways; through competing autonomous legal regimes (*horizontal* fragmentation), or through treaty interpretation and transposing international obligations into national legislation (*vertical* fragmentation). Thereafter, this paper illustrates that *vertical* fragmentation is already taking place through an analysis of the various interpretations of the obligations under Article VI OST. Particular attention will be given to who is defined as the subject of various national space laws in order to identify divergent interpretations regarding the criteria for qualifying as an actor *carrying out* a space activity in accordance with Article VI. The conclusion will address these issues and argue that coordination, and perhaps even harmonisation of key concepts is both beneficial and necessary to mitigate the negative consequences of the fragmentation of international space law.

2. Fragmentation of International Law

No universal definition exists to describe the fragmentation of international law. In this paper we discuss two manners in which fragmentation can take place. First, there is what can be called *horizontal* fragmentation. This can be defined as both a process and a result, arising from various causes, of disagreement as to which set of rules should take precedence and govern a situation.[1] We refer to this process as *horizontal* because it is caused by conflict between specialised autonomous legal regimes that, hierarchically speaking, are on a level playing field.

A second type of fragmentation, which we see as *vertical* in nature, is the fragmentation caused through the interpretation of international agreements by states. While transposing their international obligations into national rules and regulations, states interpret these obligations. Since international agreements are often ambiguous and the result of negotiations between states with diverging interests and motives, states will interpret their international obligations in different ways leading to fragmented notions of the substantive content of an international obligation. *Vertical* fragmentation will be the focus of this paper.

1 T. Megiddo, 'Beyond Fragmentation: On International Law's Integrationists Forces', *The Yale Journal of International Law*, Vol. 44, No. 1, 2019, pp. 116-147, p. 118; ILC, 'Report of the Study Group of the International Law Commission on the Fragmentation of International Law: Difficulties Arising From the Diversification and Expansion of International Law, Finalized by Martti Koskenniemi' (13 April 2006) UN Doc A/CN.4/L.682.

2.1. Vertical Fragmentation through Treaty Interpretation

While *horizontal* fragmentation takes place through the proliferation of legal regimes and the proliferation of courts, *vertical* fragmentation takes places through diverging interpretations of international obligations by states. The ILC Report acknowledges this *traditional* form of fragmentation of international law when it states that the fragmentation caused by increasing specialisation is "not too different" from fragmentation of international law into "national legal systems".[2] Other authors have also underwritten this *traditional* form of fragmentation and posited that fragmentation has played a part in international law for 150 years,[3] long before the specialisation observed in the post-war system of international law. Traditional or *vertical* fragmentation is one of the most common sources of conflict under international law. For example, in the *Whaling in the Antarctic* case, wherein the conflict centred around the interpretation of the term 'conservation and development'.[4]

The underlying cause that allows *vertical* fragmentation to take place is the same cause that allows *horizontal* fragmentation to take place, namely the lack of an overarching legislative body.[5] The cause for the increase in fragmentation, however, is distinct. While the increase in *horizontal* fragmentation emanates from the proliferation of specialised regimes and arises as a result of "new technical and functional requirements",[6] *vertical* fragmentation arises in response to developments which require regulation, but which international law does not regulate in detail. New technological developments in outer space activities prompt states to take regulatory measures. In turn, this requires states to interpret their international obligations taking into consideration these developments. Thus, an increase in *vertical* fragmentation may occur when international law does not detail how an activity should be regulated. This requires states to interpret broader principles and make them specific enough to regulate the desired activity.

2 ILC Report, 2006, p. 15.

3 T. Broude, 'Keep Calm and Carry On: Martti Koskenniemi and the Fragmentation of International Law', *Temple International and Comparative Law Journal*, Vol. 27, No. 2, 2013, pp. 279-292, p. 287; A.-C. Martineau, 'The Rhetoric of Fragmentation: Fear and Faith in International Law', *Leiden Journal of International Law,* Vol. 22, No. 1, 2009, pp. 1-28, pp. 8-26.

4 M. Andenas & E. Bjorge (eds.), *A Farewell to Fragmentation: Reassertion and Convergence in International Law*, Cambridge, Cambridge University Press, 2015, p. 9; *Whaling in the Antarctic (Australia v. Japan: New Zealand intervening)* [2014] ICJ Rep 226.

5 ILC Report, 2006, pp. 23 and 246; B. Simma, 'Fragmentation in a Positive Light', *Michigan Journal of International Law*, Vol. 25, No. 4, 2004, p. 845-847, p. 845.

6 Broude, 2013, pp. 285-286.

Nevertheless, the underlying factor remains the same, the "decentralised structure of international law which results from the absence of a central world legislator".[7] In the case of *vertical* fragmentation it is then caused by sovereign states interpreting their international obligations and an absence of a legislative body to determine the authoritative interpretation.[8] Instead, the system of international law relies on horizontal transactional relationships between states.[9]

Treaties and other legal instruments are a result of negotiations between states and are thus, as eloquently put in the ILC Report, "a result of conflicting motives and objectives – they are 'bargains' and 'package deals'".[10] States negotiate treaties while having divergent policy priorities and aim to negotiate treaties that are the best possible outcome for their own political and practical goals.[11] Therefore, these negotiations often result into "deliberately open-ended" texts.[12] This then requires states to interpret the text, or as Martti Koskenniemi asserts: "Modern international law is an elaborate framework for deferring substantive resolution elsewhere: into further procedure, interpretation, equity, context and so on".[13]

2.2. Fragmentation of International Space Law

An interesting question to explore in this context, is whether international space law is particularly vulnerable to fragmentation due to the broad nature of the principles set forth in the UN Space Treaties and the large variation in space activities and capacities state are experiencing – from small satellites and launchers to complex human space flight missions.

First, the UN Space Treaties have been negotiated and adopted in the 60's and 70's. While this does not necessarily diminish the value and relevance of the provision adopted in the treaties, it does need to be acknowledged that immense technological progress has been made since the 60's and 70's.

7 A. Peters, 'The Refinement of International Law: From Fragmentation to Regime Interaction and Politicization', *International Journal of Constitutional Law*, Vol. 15, No. 3, 2017, pp. 671-704, p. 674; R. Kolb, 'Is there a Subject-Matter Ontology in Interpretation of International Legal Norms' *in* E. Björge, *A Farewell to Fragmentation: Reassertion and Convergence of International Law,* Cambridge, Cambridge University Press, 2014, p. 474.

8 Peters, 2017, p. 674.

9 H.G. Cohen, 'Fragmentation' *in* J. D'Aspremont & S. Singh (Eds.), *Concepts for International Law: Contributions to Disciplinary Thought*, Cheltenham, Edward Elgar Publishing, 2019, p. 315; ILC Report, 2006, p. 23; Simma, 2004, p. 845.

10 ILC Report, 2006, p. 23.

11 Broude, 2013, p. 287; Peters, 2017, p. 674.

12 Peters, 2017, p. 674.

13 M. Koskenniemi, 'The Politics of International Law', *European Journal of International Law*, Vol. 1, No. 1990, pp. 4-32, p. 28.

Second, the provisions in the UN Space Treaties are ambiguous and require further clarification for the practical implementation.[14] Therefore, interpretation, and by extension a manner of *law-making* is inevitable when translating the ambiguous principles into legal norms within national space legislation.[15] Accordingly, Philip de Man notes that national space legislation has become an interpretative tool used by states to serve their specific motives.[16] He further notes that the simultaneous occurrence of transposing international obligations into national legislation and diminished intergovernmental proceedings results in the risk of alteration of the international obligations.[17] When two or more states then take up different interpretations of international obligations, *vertical* fragmentation is the result.

2.3. Consequences of fragmentation

What, then, are the consequences of fragmentation? Perspectives on the consequences of fragmentation differ. On the one hand, some authors see fragmentation as having a negative impact on the unity of the system of international law,[18] it leads to anarchy and competing national regimes that push for their own interpretation and preferences.[19] Furthermore, when it comes to *horizontal* fragmentation, various ICJ judges have remarked that fragmentation could lead to forum shopping, uncertainty about the substantive content of the law, and a restriction of the role of international law in inter-state relations.[20] It is straightforward to see that all of these issues equally apply to *vertical* fragmentation. Favourable national space regimes lead to forum shopping by private entities and flag of convenience situations, while diverging interpretations lead to uncertainty about the international obligations and a shift away from the discussion of the regulation of outer space and space activities on an intergovernmental level.

14 P. de Man, 'State Practice, Domestic Legislation and the Interpretation of Fundamental Principles of International Space Law', *Space Policy*, Vol. 42, 2017, pp. 92-102, p. 92.

15 L.E. Popa, *Patters of Treaty Interpretation as Anti-Fragmentation Tools,* New York, Springer International Publishing, 2018, p. 82; N. Matz-Lück, 'Norm Interpretation across International Regimes: Competences and Legitimacy' *in* M.A. Young, *Regime Interaction in International Law: Facing Fragmentation,* Cambridge, Cambridge University Press, 2012, pp. 213-214.

16 De Man, 2017, p. 93.

17 De Man, 2017, p. 101.

18 Simma, 2004, p. 845.

19 Martineau, 2009, p. 5.

20 Cohen, 2019, p. 317; ILC Report, 2006, p. 12; G. Hafner, 'Pros and Cons Ensuing from Fragmentation of International Law' *Michigan Journal of International Law*, Vol. 25, No. 4, 2004, pp. 849-863, p. 856.

Other authors see fragmentation as a process that has positive effects. First, fragmentation can present an opportunity to developing states to voice their perspective.[21] However, with respect to international space law it is unlikely that this positive effect will occur, as it is the developed, spacefaring states that will first elaborate their perspective through national space legislation, while developing states do not necessarily have the same priorities. Second, fragmentation can be a trigger to achieve progress in the law.[22] The idea is that the diverging interpretations of an international obligation allow for different perspectives on an issue to reveal themselves and require states to engage in inter-state discussions to deal with potential conflict. Third, in a world characterised by activities requiring very technical regulatory regimes, fragmentation allows specialisation and flexibility which may lead to a higher degree of compliance with international law, accommodating different positions held by states and accommodating a gradual development of international law.[23] In essence, fragmentation through interpretation can lead to regulatory competition which can have a positive impact on society and effective legal solutions.[24] The other side of the coin is that regulatory competition can equally lead to a *race to the bottom*, with states adopting laxer regulation to entice private entities to incorporate within their jurisdiction.[25]

3. Vertical fragmentation of International Space Law

While, as some argue, the *time of treaties* with respect to space law may be over, space law is still expanding and developing. In fact, the technological developments in, and privatization of, the space sector have resulted in an unprecedented number of states adopting national space legislation. Therefore, we are in a *time of operationalisation*. Three assumptions underpin the arguments presented in this section. First, the broad nature of the principles of the space treaties may leave international space law particularly vulnerable to suffer the negative consequences of *vertical* fragmentation. Second, the development of more complex organisational chains for launching and operating spacecrafts, wherein more actors take part across jurisdictions, may make it more difficult to pinpoint the

21 Cohen, 2019, p. 323.
22 Simma, 2004, p. 846.
23 Megiddo, 2019, p. 122; Hafner, 2004, pp. 850-851.
24 D. Linden, 'The Impact of National Space Legislation on Private Space Undertakings: A Regulatory Competition between States?' 66th International Astronautical Congress 2015, Jerusalem 12-16 October 2015, p. 3.
25 Linden, 2015, p. 3.

responsible party. Furthermore, this development makes it more critical that states coordinate their licensing regimes. Third, the proliferation of national space legislation increases the likelihood of an escalation of *vertical* fragmentation processes. As such, *the time of the operationalisation of the treaties* is a critical period wherein coordination is essential to mitigate the negative effects of fragmentation.

3.1. Divergent Interpretation as to Who is "Carrying out a Space Activity": The Question of Control

States have divergent interpretations of core principles of international space law. Even basic concepts, such as the definition of a space activity, have a history of being contentious. When Norway adopted its 1969 national space law, it choose to regulate the launches of sounding rockets.[26] Meanwhile, just across the border, Sweden explicitly excluded the launching of sounding rockets as an activity that should be regulated under its 1982 space law.[27] To further exemplify this, the next section analyses what it means to "carry out a space activity" under Article VI OST.

Article VI OST stipulates that states are obliged to authorise and continuously supervise space activities carried out by non-governmental actors. However, it offers no further insight into what it means to carry out a space activity. Most modern space laws set forth that the one in control of the space object must apply for a license and is thus the responsible party. However, modern space missions can be operated and owned by a complex chain of actors. The legal owner and technical operator may not be the same. This is further complicated by actors such as launch brokers, turnkey providers, operators/turnkey providers offering initial testing in orbit, operators offering operating and/or communication services for the duration of the mission, - and in the future - operators providing in-orbit servicing. All of this makes it difficult to establish who is in control and "carrying out the space activity" and ensure they operate under the appropriate legal framework.

To explore this question further, the space legislation in the Netherlands, Belgium and France shall be analysed. As a disclaimer, it is important to note that as an external party it is difficult to have full insight into the practical application of the legislation. Thus, this analysis relies on the legal texts, explanatory notes and academic contributions of legal experts from the

26 M. Eldholm, *Norge og FNs rammeverk for bruken av verdensrommet*, Norsk Romsenter, 2017.

27 I. Marboe, 'National Space Law' *in* F. von der Dunk & F. Tronchetti (eds), *Handbook of Space Law,* Cheltenham, Edward Elgar Publishing, 2015, p. 153.

respective countries. It should also be noted that some laws have limited application and may be more flexible than anticipated by the authors. Last, the point is not to argue that one law is better than the other, but simply to illustrate that there are divergences and that these are products of national particularities and interpretations.

The Netherlands supplemented its national law in 2015 with an additional decree to deal with the concept of control because small satellite operators fell outside the scope of the original law,[28] which applied to the launch, flight operations and guidance of space objects.[29] The initial focus of the law was presumably influenced by the phrasing "carried out" in Article VI OST, which can be interpreted to imply activity and actual physical control. However, this became problematic when a space object could not be manoeuvred. In light of the small satellites being developed by Dutch universities, but launched in other countries, the Netherlands revised its regulation to ensure the scope included an operator maintaining a "communication link" with the spacecraft.[30] Therefore, the notion of control and the one carrying out the activity is closely linked with an actor who has technical control over the activity. A broader scope could be possible, as by order of Council the law could apply to one who "organises for" a space activity.[31] While the latter could be envisioned to include legal control or ownership, and arguably some control of a space object, Frans von der Dunk notes that the mere organisation of space activities "from within the Netherlands" does not automatically fall within the scope of the Act and that the inclusion of this clause was intended to regulate future human spaceflight.[32]

Belgium considered a different approach more suitable to regulate the QB50 missions. This was a European Union funded project lead by the von Karman institute in Belgium. By 2017, 36 satellites from universities all over the world had been launched as part of this project, including universities located

28 Besluit houdende uitbreiding van de toepassing van de Wet ruimtevaartactiviteiten op het beheren van ongeleide satellieten (Besluit Ongeleide Satellieten) van 19 januari 2015, Stb. 2015, 18.

29 Wet betreffende regels omtrent ruimtevaartactiviteiten en de instelling van een register van ruimtevoorwerpen (Wet Ruimtevaartactiviteiten) van 24 januari 2007, Stb. 2007, 80, article 1(b); T. Masson-Zwaan, 'Registration of Small Satellites: The Netherlands' *in* Irmgard Marboe, (ed), *Small Satellites: Regulatory Challenges and Chances,* Leiden, Brill | Nijhoff, 2016, p. 191.

30 Besluit Ongeleide Satellieten, 2015, article 2(b).

31 Wet Ruimtevaartactiviteiten, 2007, article 2(2)(b).

32 F. von der Dunk, 'Billion-dollar Questions? Legal Aspects of Commercial Space Activities', *Uniform Law Review*, Vol. 23, 2018, pp. 418/446, p. 418.

in countries without national space legislation.[33] The small satellites had little to no options for manoeuvring, but the operation of communication links and payloads remained with the universities. The von Karman institute did not qualify as a space operator under the original Belgian law. However, Belgium revised the law to ensure the institute was regulated, based on an understanding that the institute had the final legal authority of the chain of operations and as such qualified as a non-governmental entity carrying out a space activity in accordance with Article VI OST.[34] Thus, Belgium revised its law and definition of operator and replaced the technical criterion, actual command, with a legal criterion, final authority, wherein effective control is associated with legal authority over the operational chain of command.[35]
Finally, the French law recognises the operator as any natural or juridical person carrying out a space operation under its own responsibility and in an independent manner.[36] In addition, it allows for several operators holding a license in series, by allowing the transfer of the license. In his analysis of the law and preparatory work Philippe Clerc notes that the qualification of an operator:

> Is to be kept for those who, at a given time, have the effective control or command and the (delegated) power to dispose of the spacecraft (the abusus), in other words, the one who behaves as the real decision maker, even if not being the owner, in particular when it comes to engaging the spacecraft's end of life manoeuvre.[37]

This means that there can only be one operator at the time holding an active license, who is recognised as the responsible and liable party under the French legislation.[38] This notion is further developed in the sections allowing for a transfer of license either to or from a French operator, where it is stipulated that the transfer-of-license procedure is only required if there is a change in the operator who in an "independent manner" has the sole "effective and final decision making" power, as not to affect sub-contractors or owners without any real say in the control of the mission.[39] Interestingly,

33 See: www.QB50.eu.
34 J.-F. Mayence, 'QB 50' *in* Irmgard Marboe (ed), *Small Satellites: Regulatory Challenges and Chances,* Leiden, Brill | Nijhoff, 2016, p. 198.
35 Mayence, 2016, p. 197-198.
36 Loi n◦ 2008-518 du 3 juin 2008 relative aux operations spatiales, NOR: ESRX0700048L (Act n◦ 2008-518 on Space Operations of 3 June 2008), article 1(2); P. Clerc, *Space Law in the European Context: National Architecture, Legislation and Policy in France,* The Hague, Eleven International Publishing, 2018, p. 172.
37 Clerc, 2018, p. 172.
38 Clerc, 2018, p. 172.
39 Clerc, 2018, p. 173.

Clerc notes that confusing situations may still arise in relation to whom is in control of the mission. In particular during the end of life-phase where an operator may be under strict instruction from an owner who wishes to extend the life of its asset, while the technical operator, who remains liable, may wish to dispose of the satellite while there is a good chance of successfully doing so. Trade-offs may have to be made between extending life and ensuring there is enough fuel or functionality left in the satellite to successfully deactivate it and subsequently de-orbit it or move it to a graveyard orbit. When a situation arises where there is an unclear chain of command, the owner of the space object may be presumed as the operator.[40] Thus, it seems that the "independent manner" requirement remains somewhat complicated and can lead to challenges in establishing who is the responsible and liable party.[41]

On the surface, this seems to imply that there is no consensus as to what criterion qualifies an actor as a non-governmental entity "carrying out" a space activity under Article VI OST, and that divergences are emerging.

3.2. The Negative Consequences of Vertical Fragmentation

The question of which criteria qualify an actor as "carrying out" a space activity may seem like a minor issue. However, taking into consideration the proliferation of national space laws and the increasing complexity of the operational chains for organising and operating space missions, divergent interpretations have serious implications and may lead to negative effects caused by "vertical" fragmentation. For example, a satellite owner in country A can purchase a satellite through a turnkey provider in country B, who use the services of a launch broker in country C to purchase services with a launch service provider in country D. The satellite will be tested by the turnkey provider in orbit, before the control and command is handed over to an operator in country E. In scenarios involving such structures, it may be difficult to determine which actors should be required to operate under a license during certain or all phases of the mission, and who will have the final and independent ability to determine the faith of the mission.

These regulatory questions are not made easier by divergent national interpretations. If an incident were to arise, these divergences could lead to conflicting opinions of who the responsible and liable state would be. Imagine a scenario where a legal owner contracts a technical operator to conduct the operations of their satellite constellation. The technical operator is based in a country where legislation allocates responsibility to the actor

40 Clerc, 2018, p. 173.
41 Clerc, 2018, p. 173.

with the legal authority, and the actor with legal control is based in a country where the legislation focused on technical control – they could both end up escaping regulation. On the other hand, it could also lead to a duplication of regulation, or simply a confusion as to which regulations apply, and who should regulate what.

Many of these challenges can and are being handled by contracts, and/or pragmatic bilateral understandings and legal agreements. However, divergent practices leave room for uncertainty regarding both responsibility and general international liability and create a large reliance on having requirements for reporting, insight and requiring consent for changes in contractual relations between two or more entities (where some may not be based within the jurisdiction of the licencing state). It should also be noted that agreements between states in relation to the responsibility and liability for space activities seems to be a somewhat underdeveloped area.

As with *lex specialis,* which has its own reason and logic, national space legislation is a product of the needs and ambitions of a particular domestic space sector. Likewise, one must recognise that a state has made a certain choice in its national space legislation, it does not mean it won't evolve or change. However, it does illustrate current gaps and divergence which require coordination in order to not produce divergent interpretation to the substantive content of international space law.

4. A Need for Coordination

The process of fragmentation is a natural part of the modern international law system. It is a problem that has always challenged international law.[42] Unlike what some authors claim, fragmentation does not threaten the unity of international law nor undermine the system of modern international law intrinsically. Instead, it is when fragmentation remains unchallenged that it poses a threat to the system of international law. Fragmentation could be resolved through an alternative rigid detailed-seeking system of international law. Such a system would require extensive negotiation processes which would make it difficult to find consensus on international instruments. While the current system comes with some risk for negative consequences associated with fragmentation, most can be temporary if states are willing to continue to develop the law and coordinate. As such, the process of fragmentation is a constant factor that needs to be continuously mitigated – but cannot be eliminated in the current system.

What is to be avoided is a *race to the bottom* scenario. To prevent the "dissolution and manipulation" of the norms stipulated in international

42 Broude, 2013, p. 291.

space law,[43] it is necessary that some coordination or guidance is provided on how core norms are to be interpreted. Guidance can be given through authentic interpretation by formal procedure (interpretative declaration of the norms, additional protocol, or supplementary treaty),[44] but can also take a less formal form.

When discussing *horizontal* fragmentation and whether such fragmentation is still taking place, various authors have pointed out that the fear of fragmentation has subsided compared to the grave warnings in the late 90's and early 00's. Collisions between international law regimes have led to more awareness and more effort to resolve the conflicts. This means that the causes of fragmentation (proliferation, etc.) are also the causes for why fragmentation has been resolved.[45] Cohen rightfully states, with respect to *horizontal* fragmentation, that what is missing is not a single hierarchical body, but an "effective space for international politics in which the results of these new regimes could be debated, weighed and balanced".[46] *Horizontal* fragmentation has not disappeared or gone away, but the threat of negative consequences such fragmentation has prompted discussion and allowed for politics to address the issue.[47] As such, the ability of UNCOPUOS, or other appropriate bodies, to provide an effective forum to mitigate the negative consequences of fragmentation is crucial to the future of space law.

The *time of operationalizing the treaties*, is a turning point in the history of space law. Fragmentation is a natural consequence of the proliferation of national legislation, as states have different space activities, legal traditions and interpretations. Thus, efforts to coordinate in order to mitigate negative consequences of *vertical* fragmentation become, more than ever, crucial. The ILC Report summarised it as follows: "national laws seem insufficient owing to the transnational nature of the networks while international law only inadequately takes account of their specialized objectives and needs".[48] Thus, what is necessary is coordination on how to allow for national laws to address the specialised objectives and needs without infringing on the transnational nature of outer space activities. In addition, there must be political will to address and discuss these issues, in an effective manner. As argued in the ILC Report "Anything may be harmonized as long as the will

43 Kolb, 2014, p. 475.
44 N. Matz-Lück, 'Norm Interpretation across International Regimes: Competences and Legitimacy' *in* M.A. Young, *Regime Interaction in International Law: Facing Fragmentation,* Cambridge, Cambridge University Press, 2012, pp. 219-220.
45 Cohen, 2019, p. 326; Broude, 2013, pp. 280-284.
46 Cohen, 2019, p. 326; Broude, 2013, pp. 280-284.
47 Cohen, 2019, p. 327.
48 ILC Report, 2006, p. 244.

to harmonization is present".[49] An open question is if the *time for operationalizing the treaties* may drive a need and will to do so?

Legal systems are not static systems, but in constant evolution. To recognise this, and act accordingly seem particularly relevant for space law, where the need for most states to regulate national activities is just emerging. The global community is still learning what it means to operationalise the space treaties, and while harmonisation is perceived by most states as too strong, to aim to harmonise interpretations of some key concepts would be useful to create a common baseline. For the rest, simple coordination and increased efforts to talk together about the practical application could go far in mitigating the negative consequences of vertical fragmentation.

49 ILC Report, 2006, p. 27.