Legal perspectives on the cross- border operations of unmanned aircraft systems

Fiallos Pazmino, L.F.

INTRODUCTION

A. THE TOPICALITY OF THE SUBJECT

For centuries, travelling by air was unfeasible for human beings. Then, in a brief flicker of time, the dream of flight became a reality. The world witnessed the development of aircraft, a technological revolution that might be the closest thing to a time machine that humankind will ever have, as it compresses travel over long distances into mere hours or minutes. Humankind's insatiable curiosity and thirst to achieve progress made air travel possible. As aviation has continued to evolve, a sophisticated new generation of aircraft has emerged: unmanned aircraft systems (UAS). This particular technological innovation has ignited imaginations and created opportunities that once seemed impossible to realise. Regardless of the civil or State functions they engage, the applications of UAS are virtually endless. Indeed, UAS are radically transforming civil aviation as manned aircraft once did.[1]

Thus, the challenge that humanity now confronts is the exponential pace and scope of technological change. In the same way that humankind has learned to thrive in a world in constant change, machines constantly co-evolve along with new ideas and activities. However, while technology expands at a steady rapid rate, appropriate regulation of new technologies has not kept pace. Futurist Ray Kurzweil proposed, in his 'law of accelerating returns',[2] that what equated to 100 years' worth of progress in the 21st century would, at today's rate, equal something more like 20,000 years of progress. Should this trend continue, and were one to extrapolate it to the evolution of technology, it is likely that within a few years, UAS could be capable of daily cross-border operations that transport passengers, cargo and mail safely throughout the world. While this technology matures, the potential for myriad State and civil uses of UAS continues to increase.

---

1 Fernando Fiallos, Chapter 4, '*The Applicability of the Public International Air Law Regime to the Operation of UAS*'. Edited by Benjamyn Ian Scott. In *The Law of Unmanned Aircraft Systems: An Introduction to the Current and Future Regulation under National, Regional and International Law* (Alphen Aan Den Rijn: Wolters Kluwer, 2016), 25.

2 According to studies on the history and future of technology, the rate of accelerating change is perceived to have increased throughout history and suggests the likelihood of even faster and more profound changes in the future, which may or may not be accompanied by comparable social and cultural change.

On May 29, 2019, Air Canada Cargo and Drone Delivery Canada (DDC) agreed to the provision of air transport services of cargo using UAS. DDC will build and operate up to 150,000 routes, and its fleet of unmanned aircraft (UA) will fly under flight schedules carrying different payloads of cargo. It is expected that the air transport services using UA will offer cost-effective solutions to complex issues in cargo delivery in non-traditional markets, including access to remote communities across Canada. It is also expected that this agreement will trigger and stimulate routine international air transport operations of UAS.[3]

On February 7, 2018, the world's first autonomous passenger aircraft made its first public flight in China, taking off from Guangzhou City. The Ehang 184 is an electrically powered aircraft that can transport a single passenger weighing up to 100 kilograms (kg) for 23 minutes at a speed of 100 kilometres (km) per hour. The Ehang 184 requires no pilot intervention because the automated flight system controls the UA.[4] Similarly, developments in UAS technology have made it possible to provide innovative forms of air transportation. Examples include the transport of medicines sensitive to temperature, food, humanitarian shipments, emergency relief and last-mile delivery that complement cargo operations.[5] The American aircraft manufacturer Boeing has also unveiled an autonomous aircraft with the capacity to transport goods equivalent to the weight of two baby elephants.[6]

In the same vein, students at the Delft University of Technology in the Netherlands designed an unmanned cargo aircraft, called ATLAS, that can make the cost of cargo air transport cheaper and may reduce the time needed for intermodal connections. The design aims to achieve better fuel efficiency than manned cargo aircraft. Similarly, UAS prototypes are being developed with the capacity to carry ten to thirty tonnes of cargo and travel from China to Europe in twelve hours with low fuel expenditure. These aircraft could serve airports that present-day freighters and cargo-friendly, wide-body passenger aircraft cannot serve.[7]

---

3 '*Drone Delivery Canada Announces Commercial Agreement with Air Canada*', Drone Delivery Canada, accessed June 5, 2019, https://dronedeliverycanada.com/resources/drone-delivery-canada-announces-commercial-agreement-with-air-canada/

4 '*World's First Passenger Drone Makes Maiden Public Flight in China*'. The Express Tribune. February 8, 2018. Accessed May 3, 2018. https://tribune.com.pk/story/1629472/8-worlds-first-passenger-drone-makes-maiden-public-flight-china/

5 Last-mile delivery is a logistics term used to describe the transportation of a package from a hub to the package's final destination, with the goal of delivering the item as quickly and cost-effectively as possible.

6 Alex Davies. '*Boeing's Experimental Cargo Drone Is a Heavy Lifter.*' Wired. January 14, 2018. Accessed May 3, 2018. https://www.wired.com/story/boeing-delivery-drone/

7 Pieter Hermans, '*ATLAS, an Unmanned Medium Ranged Containerized Cargo Freighter*'. Platform Unmanned Cargo Aircraft. July 1, 2015. Accessed May 3, 2018. https://www.platformuca.org/project/atlas-an-unmanned-medium-ranged-containerized-cargo-freighter/

The Bulgarian company Dronamics is building a fuel-efficient, unmanned cargo aircraft called the Black Swan, capable of transporting 350kg over 2,500km for a cost fifty percent lower than that of manned aircraft. While the Black Swan flies autonomously, a remote station will be capable of managing the flight via satellite.[8] Moreover, the aircraft can land on short and unpaved runways, and its business model is expected to enable on-demand, point-to-point flights and speedy same-day delivery, even to the most distant areas that would otherwise take days to reach over ground or sea for less than the cost of a sports car.[9] Dronamics is partnering with domestic air networks in Africa, Asia and Latin America, using fleets of the Black Swan to take advantage of the many small available airfields. Dronamics is also training local staff and logistics operators to transport goods in and out of remote mountain regions and island communities for less cost than road transportation.[10]

UAS are no longer used only for recreational activities, aerial photography or delivery of products on Earth. Such aircraft have left our atmosphere, and plans are being made to use them in outer space. For example, technology is being developed to extend the life of ageing satellites through the use of space drones. Space drones aim to dock with the orbiting spacecraft that are low on fuel and control them for up to five years.[11] Powerful nations have also developed space drones as anti-satellite weapons with the ability to disable or destroy the satellites of their enemies.[12]

B. LEGAL CHALLENGES

While the International Civil Aviation Organization (ICAO) is working to amend and create new Standards and Recommended Practices (SARPs) for the operation of UAS on cross-border flights, member States have already produced, and continue to produce, regulations that facilitate the integration and operation of these aircraft within their national airspace. This situation is causing to subvert the attempt to develop uniform and harmonised normative for UAS for international flight operations. As a result, the progress and sustainability of the UA industry and the potential

8 Pieter Hermans. '*ATLAS, an Unmanned Medium Ranged Containerized Cargo Freighter'*. Platform Unmanned Cargo Aircraft. July 1, 2015. Accessed May 3, 2018. https://www.platform-uca.org/project/atlas-an-unmanned-medium-ranged-containerized-cargo-freighter/

9 '*Dronamics*', accessed May 25, 2019, https://www.dronamics.com/.

10 *IATA_StrategicPartner_FORWEB_55pxLogo.* Dronamics. Accessed May 3, 2018. https://www.dronamics.com/.

11 Clive Cookson. '*Space Drones to Extend Life of Ageing Satellites*'. Financial Times. January 17, 2018. Accessed April 30, 2018. https://www.ft.com/content/9ab078e2-fac0-11e7-a492-2c9be7f3120a

12 '*Report: Russia Tested Anti-Satellite Weapon*'. The Daily Beast. December 21, 2016. Accessed April 30, 2018. https://www.thedailybeast.com/report-russia-tested-anti-satellite-weapon

for cross-border civil operations confront legal challenges, which this study addresses by examining answers to several research questions. Indeed, the prompt determination of answers to these questions becomes necessary as the technology advances and continues to outpace law while the potential for incidents involving UAS grows.

Additionally, the current literature on UAS is scarce and focuses only on national and regional legislation, addressing limited aspects of the law. Concordantly, there is a significant absence of literature analysing the legal spheres involving UAS in cross-border or international airspace operations. Moreover, there is a growing demand to explore this emerging area covered in the scope of international air law, since UA qualify as aircraft.

The analysis of the cross-border operations of UA will focus on aspects relevant to their immediate future, and will address the following questions: What are the processes that are currently in place? What are the factors that require attention? What are the aspects that could particularly influence the future of UAS? What are the legal challenges? This study aims to explore comprehensively the means of incorporating UAS within the arena of air law while stimulating further research and debate on the topic.

C. ORGANISATION OF THE SUBJECT

This study aims to explore the legal aspects of operating UAS from the perspective of public international air law. Nevertheless, given the changes that continue to occur across the multifaceted aspects of air law, the author will not present an exhaustive analysis but instead explore current legal and regulatory frameworks from the angle of how they may facilitate the routine and cross-border operations of UAS. Specifically, the author will focus on the applicability of Article 8 on pilotless aircraft of the *Convention on International Civil Aviation,* signed in Chicago on December 7, 1944, from now on simply referred to as the Chicago Convention 1944, to all types of UA as the starting point of this research.

Chapter One of this study examines the history of UAS, the definitions used and their current civilian applications. It also addresses the similarities and operational distinctions between manned and UA, which is vital in understanding the process of issuance and amendment of regulations consistent with the complex nature of this aircraft and its associated operational risks. This chapter also explores the contributions currently made by UAS in the sphere of civil aviation and its potential impact on future applications. There are also technological challenges that, if resolved, would facilitate the integration and routine operations of UAS in commercial cross-border flights.

Chapter Two looks into the regime of public international air law and its applicability to the operations of UAS. The chapter addresses the historical evolution of the international legal framework for UA flights that date from 1929, between World War I (WWI) and World War II (WWII). Also, being the study of legal perspectives in the cross-border operations of UAS the main subject of this research, the analysis of the principles of the Chicago Convention 1944, is fundamental. Chapter Two also provides a correlation of how the provisions of the Chicago Convention 1944, such as its Preamble, the sovereignty and territory of States, the concepts and differences between civil and State aircraft and the misuse of civil aviation apply to UAS.

International air navigation implies access to foreign airspace or airspace above the high seas. Such access depends on the characteristic features of the aircraft, including speed and versatility and is independent of being manned or not. These physical phenomena enable an aircraft in flight to a destination to cross one or several airspaces of different States, each with its own national regulatory and customs regimes.[13]

Chapter Three addresses whether UA falls into the category of *pilotless aircraft*, as governed by Article 8 of the Chicago Convention 1944. In an ordinary understanding, 'pilotless aircraft' means 'without a pilot'. However, to determine whether UA are indeed strictly pilotless aircraft, the author will resort to the legal principles of international law as well as to the rules of interpretation provided in the Vienna Convention on the Law of Treaties (VCLT), which were laid down in the theoretical framework that this introductory section later addresses.

The study of whether Article 8 governs UA is fundamental because it is the legal foundation that will enable routine operations of unmanned civil aircraft in international airspaces and will facilitate the future development of international air transport using this type of machine.

Chapter Four examines the legal aspects of UA flights into the airspace of another State or above the high seas. It examines the scope and application of Articles 5, 6, 7 and particularly 8, of the Chicago Convention 1944 under the perspective of *lex specialis*.[14] The current legal regimes for international air navigation and international air transport concentrate on the operation of manned aircraft. This chapter analyses the potential extension of their

13 Pablo Mendes de Leon. *Introduction to Air Law*. 10th ed. (Alphen Aan Den Rijn: Kluwer Law International, 2017), 5.

14 *Lex specialis* is a Latin phrase that means 'law governing a specific subject matter'. The term derives from the legal maxim, *lex specialis derogat legi generali.* This doctrine relates to the interpretation of laws and can apply in both domestic and international law contexts. See US Legal, Inc., 'Lex Specialis Law and Legal Definition,', accessed June 7, 2019, https://definitions.uslegal.com/l/lex-specialis/

application to unmanned civil aviation, including the freedoms of the air, and the main legal challenges involving cross-border operations by UA. As States exercise sovereignty over the airspace above their territories, prior authorisation is necessary for international air transport. This authorisation is different from the authorisation introduced in Article 8 with reference to 'pilotless aircraft '. In this context, Chapter Four, addresses the interactions and legal implications of the authorisations granted to UA seeking to engage in international flights. The analysis also includes the roles of the bilateral and multilateral agreements concluded and adopted among the different States regarding international air transport.

Because both manned and UA share the same atmosphere and phases of flight, they also share similar risks during their operations. *Chapter Five* examines the principal safety aspects of the cross-border operations of UAS. It will explore how the Chicago Convention 1944 and its Annexes on safety apply to UAS engaged in international air navigation. It will examine the principal provisions of the Chicago Convention 1944 on safety, such as rules of the air, documents carried on board the aircraft, certificates of airworthiness, personnel licensing and the recognition of certificates and licences. Because the pivot of the civil aviation safety rules are manned aircraft, Chapter Five will also analyse the safety challenges that UAS may confront during cross-border operations. These challenges will cover several aspects, such as integrating UAS into non-segregated airspaces, the management of safety and security, flight planning, access to aerodromes, handovers and recent incidents involving UAS.

Chapter Six summarises the fundamental aspects of this research, which includes a review of the research questions and the extent of clarifications provided by the research findings. There will be a holistic assessment of the legal aspects pertaining to the cross-border operations of UAS and the implications of the findings concerning the existing literature and common perspectives on the topic. Finally, Chapter Six will appraise how the findings could contribute to the evolution of air law and recommend potential areas for future research.

D. RESEARCH QUESTIONS

It is paradoxical that although aviation hinges on the existing shared lexicon accepted by the States and is an activity to which they committed to foster and develop,[15] the Chicago Convention 1944 defines neither the word

15 The third paragraph of the preamble of the Convention on the International Civil Aviation, signed in Chicago on 7 December 1944, states: THEREFORE, the undersigned governments having agreed on certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically....

'aviation' *per se* nor the term 'international civil aviation'.[16] The absence of clear definitions of such pertinent terms in the Chicago Convention 1944, which form the nucleus of air law and are vital for facilitating the potential advancement of air transportation in all nations, poses the question of how UAS could be effectively incorporated as an element within international civil aviation operations. While the civil uses of UAS increase and the technology mature in parallel, questions around the associated legal implications remain unanswered, even in the fundamental legal regimes of international civil aviation that include the legal regimes of airspace, aircraft, international air navigation, international air transport and safety.

The present study aims to answer the following primary research question:

1. Is the actual international legal framework adequate to ensure the operation and development of UAS while preserving high levels of safety?

Also, the following questions are addressed in detail in the corresponding chapters and will contribute to a holistic conclusion to the research in *Chapter Six*:

1. Do the Chicago Convention 1944 and its SARPs apply to UAS? (*Chapters One, Two, Three, Four and Five*)
2. What are the legal aspects associated with international air navigation and international air transport of UA? (*Chapter Five*)
3. Can the current international air transport legal regime support the cross-border operations of UAS? (*Chapter Five)*
4. Do the Chicago Convention 1944 and its SARPs require updating to incorporate UAS within the international civil aviation system? (*Chapter Six)*

E. RESEARCH METHOD

To answer the above research questions, give coherence and explain the line of reasoning adopted in the study, the author uses the method of doctrinal research, which aims to question what the law is and how it could apply to a particular area of interest.[17] In terms of the present research, it refers to how the basic legal regimes of international civil aviation govern or should govern the cross-border operations of unmanned aircraft systems. The analysis of the said regimes will require the study of relevant provisions of the Chicago Convention 1944 and its SARPs, the *International Air Services Transit Agreement*, the *International Air Transport Agreement*, the role of Bilateral Agreements on Air Services and ICAO's official documents on the topic.

16 Brian F. Havel & Gabriel S. Sanchez, *The Principles and Practice of International Aviation Law (The United States)*, Cambridge University Press, 2014), 34.

17 Michael McConville, Wing Hong Chui, Ian Dobinson, and Francis Johns. 'Chapter 1: Qualitative Legal Research.' Essay. In *Research Methods for Law* (Edinburgh: Edinburgh University Press, 2017), 22–23.

E.1 APPROACH

The approach of this study originates from the idea that cross-border operations of UAS shall be safe, harmonised and seamless, analogous to those of manned operations.[18] Since the inception of the *Convention Relating to the Regulation of Aerial Navigation* of 1919, both the legal and regulatory frameworks of international civil aviation have been progressively developed and applied, albeit concerning only manned civil air operations. However, the frameworks had no particular provisions for UA and only stipulated two types of aircraft: private and State. It was not until 1929 when the Protocol of June 15, 1929, amending the *Convention Relating to the Regulation of Aerial Navigation* of 1919, incorporated a provision specifically for pilotless aircraft.

E.2 CONTRIBUTION OF THE RESEARCH

While the existing literature discussing the legal framework relating to the cross-border operations of UAS is not abundant, the importance of this area becomes increasingly evident in light of accidents or incidents involving UAS. The primary contributions of this research will be the findings of the legal reasoning and debate on cross-border operations of UAS under public international air law. The legal analysis will focus on the consistency and applicability of the above-described international civil aviation legal regimes concerning the cross-border operations of UAS.

F. THEORETICAL FRAMEWORK FOR ANALYSIS

Because the law is a sophisticated human construct in permanent change, part of the present legal research involves formulating hypotheses to provide meaning for detailed rules already adopted by the States in the legal regimes of international civil aviation, and projecting those hypotheses to shape new patterns of rule-making applicable to the cross-border operations of UAS.

Often, the most profound discoveries are those that give new coherence to common legal phenomena.[19] Therefore, the ascertainment and synthesis of existing principles of the law and rules of interpretation regarding public international law will be fundamental in supporting the arguments presented by the author, which are expected to be original content that contributes to the existing body of research on the topic.

---

18 ICAO. *Manual on Remotely Piloted Aircraft Systems (RPAS)*. Montreal, Canada: International Civil Aviation Organization, 2015. *(v)*

19 Michael McConville and Wing Hong Chui. *Research Methods for Law* (Edinburgh: Edinburgh University Press, 2017), 161.

In the following sections, the author examines the applicable sources, rules, principles and concepts of public international law and their interpretation. The sources analysed include customary international law, general principles of law and international agreements. The interpretation and application of these sources will use established interpretation methods, interpretations by international organisations and the subsequent practice of the States.

These components will provide a foundation to analyse further how the legal regimes of international civil aviation may apply to UA that engage in international flights.

F.1 CUSTOMARY INTERNATIONAL LAW

Among the sources of international law listed in Article 38 of the Statute of the International Court of Justice (ICJ) and also called 'the Statute', paragraph 1b) refers to 'general custom as evidence of a general practice accepted as law' whereas paragraph 1c) mentions 'the general principles of law recognised by the civilised nations'.[20]

A customary practice from the States may become a binding customary norm on all States if the following are true:

1. It is a consistent practice among States that endures over time; and,

2. Under a belief of States referred to as *opinio juris sive necessitates*, such practice is necessary.[21]

The ICJ confirmed such conditions in the Continental Shelf case of 1985 *(Libya vs Malta)* by stating the following:

> "...the substance of customary international law must be looked for primarily in the actual practice and *opinio juris* of States."[22]

Uniform consistent practice has sources of evidence and *opinio juris*. These sources may take the form of diplomatic correspondence and statements, domestic legislation, executive practice and judicial decisions, among

20 See Article 38 of the Statute of the ICJ.

21 Brian D. Lepard. *Customary International Law: A New Theory with Practical Applications* (Cambridge: Cambridge University Press, 2011), 6. See also J-S Brierly, J.-S., *The Law of Nations* (Oxford: Clarendon Press, 1928, 59-62.

22 Continental Shelf Case *(Libya vs Malta)*, 1985 ICJ Rep. 13, 29, 39, para. 27. See also Brian D. Lepard, *Customary International Law: A New Theory with Practical Applications*. (Cambridge: Cambridge University Press, 2011), 6.

others.[23] The recognition of the character of an obligatory practice by most States suffices to bind all States, including new States. This situation also applies to States that have not consented to such practice unless they qualify as 'persistent objectors'.[24]

A customary international norm results when States accept that it is advisable to have an authoritative legal principle or rule that would prescribe, permit or prohibit certain conduct. Between *opinio juris* and the consistent practice of States, *opinio juris* may be more relevant because the consistent practice of States demonstrates that the States act following a subjective, pre-existing legal opinion. Hence, *opinio juris* may suffice to create a customary norm, making it unnecessary to satisfy the 'consistent practice of States' requirement separately in every case.[25] The practice of States works only as one source of confirmation States accept that a particular authoritative legal principle or rule is beneficial now or in the future.[26]

F.2 GENERAL PRINCIPLES OF LAW

Article 38 1c) of the Statute also refers to 'the general principles of law recognised by the civilised nations'. The Statute of the current ICJ was initially drafted in 1920 and provides the context explaining the reference to civilised nations, which is outdated since, in the 21st century, all nations are presumed to be equally civilised.

In 1920, international law was not as developed as it is today and, therefore, the challenge that the drafters of the Statute of the Permanent Court of International Justice (PCIJ), the predecessor of the ICJ, were facing the issue of *non liquet*. *Non liquet* is the situation in which a competent court or tribunal fails to decide the merits of an admissible case for whatever reason, be it the absence of suitable law, the vagueness or ambiguity of rules, inconsistencies in the law or the injustice of the legal consequences.[27] The concept of general principles of law was introduced to fill the gaps that could be left in case there would be no relevant treaty or custom to resolve a dispute. Instead of giving the court the possibility to invent new rules, the drafters

23 Ian Brownlie. *Principles of Public International Law* (Oxford: Oxford University Press, 2010), 6-7.

24 On the persistent objector doctrine, the new States are bound by existing norms of customary international law. See also Brian D. Lepard, *Customary International Law: A New Theory with Practical Applications* (Cambridge: Cambridge University Press, 2011), 7.

25 Brian D. Lepard. *Customary International Law: A New Theory with Practical Applications*. (Cambridge: Cambridge University Press, 2011), 7.

26 Brian D. Lepard. *Customary International Law: A New Theory with Practical Applications*. (Cambridge: Cambridge University Press, 2011), 8.

27 *Non Liquet*. Oxford Public International Law. August 07, 2018. Accessed September 29, 2018. http://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e1669

of the Statute directed the court to consider and apply general principles of law recognised by civilised nations. Also, in 1920, the drafters of the PCIJ Statute intended to refer to rules of domestic or municipal law common to the principal legal systems of the world, namely, civil law, common law, Chinese law and other rules of law. In other words, the legal principles of domestic or municipal legal systems were applicable, as they are widely considered to be common to the rules of international law.[28]

General principles of international law can be deduced from other sources of international law, including custom and treaties of a general character.[29] The extraordinary development of international law through treaties and customary rules has limited the need to rely on general principles within the meaning of Article 38 to find rules that fill the gaps in the system of international law. However, the judgements of international courts and tribunals, notably those of the ICJ, very often use the term general principles of law, but most of the time the courts refer to customary international law. By this usage, the importance and well-established character of the customary rule at stake is emphasised. In other words, the courts point to *general principles of law* as rules having the nature of *customary international law*.'[30]

Consequently, speaking of principles or general principles of law means that we are speaking about custom. Sometimes the words of the general principles of international law are used to refer to an axiomatic principle of international law, without which international law would not have come to its current advancements: for instance, the equal sovereignty of States or *pacta sunt servanda*.[31]

F.3 INTERNATIONAL AGREEMENTS

Article 2 (a) of the VCLT defines a treaty as follows:

> "...an international agreement concluded between States in written form and governed by international law, whether embodied in a single instrument or in two or more related instruments and whatever its particular designation."

---

28 John H. Currie, Valerie Oosterveld, Craig Forcese, and Joanna Harrington. *International Law: Doctrine, Practice, and Theory.* (Toronto, Ontario: Irwin Law, 2014), 145-155.

29 Rumiana Yotova. *Challenges in the Identification of the General Principles of Law Recognized by Civilized Nations: The Approach of the International Court* (Cambridge: University of Cambridge Faculty of Law, 2017), 306.

31 *General Principles.* YouTube. January 27, 2017. Accessed October 03, 2018. https://www.youtube.com/watch?v=ObSwnKQNWrM

30 John H.Currie, Valerie Oosterveld, Craig Forcese, and Joanna Harrington. *International Law: Doctrine, Practice, and Theory.* (Toronto, Ontario: Irwin Law, 2014), 145-155.

31 *General Principles.* YouTube. January 27, 2017. Accessed October 03, 2018. https://www.youtube.com/watch?v=ObSwnKQNWrM.

International agreements are known by a variety of titles, such as treaties, conventions, pacts, acts, declarations, protocols, arrangements, concordats and *modus vivendi*. None of these terms has an entirely fixed meaning. The more formal political agreements, however, are usually called treaties or conventions.[32]

F.4 INTERPRETATION METHODS

The rights of States under international law must be understood in the context of the corresponding duties that international law imposes upon them. The purpose of treaty interpretation is to establish the meaning of a text that the Parties intended it to have, concerning the circumstances in which the question of interpretation has arisen.

The logical starting point for an interpretation process would be to consider Articles 31 to 33 of the VCLT. The ICJ declared that the VCLT rules of interpretation apply to all treaties. This statement suggests that the rules of interpretation apply, regardless of adherence or whether the States concerned are Parties to the VCLT.[33]

According to the Special Rapporteur on the law of treaties of the International Law Commission of the United Nations (ILC), Sir Humphrey Waldock, treaty interpretation provides the following understanding:

> "The process of interpretation, rightly conceived, cannot be regarded as a mere mechanical one of drawing inevitable meanings from the words in a text, or of searching for and discovering some pre-existing specific intention of the parties with respect to every situation arising under a treaty...In most instances, interpretation involves giving a meaning to a text."[34]

Under this purview, the interpreter seeks to provide meaning to a manuscript in a treaty instead of finding a hidden meaning. Even though the general considerations in the preparation of the treaty may apply, interpreting the treaty is not about finding a unique meaning of a text but giving significance to the words.[35]

According to Professor Richard Gardiner, the interpretation dilemma has two sides. First, there is a distinction between interpreting straightforwardly and adding a normative method. The second is whether the interpreter

---

32 Oscar Svarlien. *An Introduction to the Law of Nations* (New York, 1955), 261.

33 Richard K. Gardiner. *Treaty Interpretation.* (Oxford: Oxford University Press, 2017), 7.

34 *Third Report on the Law of Treaties, by Sir Humphrey Waldock, Special Rapporteur*, A/CN.4/167 and Add.1-3 (International Law Commission Study Group on Fragmentation Koskenniemi), accessed June 7, 2019, http://legal.un.org/ilc/documentation/english/a_cn4_167.pdf

35 Richard K. Gardiner. *Treaty Interpretation* (Oxford: Oxford University Press, 2017), 26.

should pursue the original meaning of the text—that is, what the participants meant to say at the time of conclusion of the treaty—or whether an objective approach should prevail, which gives meaning to a text at the time when an issue of interpretation and application appears.[36]

When Parties do not have a shared subjective approach, the only solution available may be the objective approach, as interpreting a text may identify events not foreseen by the drafters and which may have been bypassed or treated generally rather than in detail. The VLCT interpretation rules guide how to use the elements of interpretation while providing a margin of analysis for the interpreter to deliver a result.[37]

In the view of Richard Gardiner, interpreting a treaty requires the following elements:[38]

- Good faith in producing the ordinary meaning of the words used in the context and the light of the object and purpose of the treaty;
- Consideration of associated instruments of defined types, attention to agreements of the Parties as to the meaning, whether accurately recorded or demonstrated through practice;
- Giving special meaning to terms where this is intended; and,
- Application of relevant rules of international law.

The most significant of the subsidiary means of interpretation are the preparatory work and circumstances of the conclusion of a treaty. The VCLT also has other provisions that address situations where treaty provisions are in different languages. The VCLT assembles all these elements in Articles 31 on General Rules of Interpretation, Article 32 on Supplementary Means of Interpretation and Article 33 on Interpretation of Treaties authenticated in two or more languages. These provisions lead to the essential material to consider when interpreting a treaty.[39]

Nevertheless, the ILC commented that the rules of interpretation of the VCLT are not all used every time:

> "All the various elements, as they were present in any given case, would be thrown into the crucible, and their interaction would give the legally relevant interpretation." [40]

The VCLT rules are not an exclusive collection of provisions for interpreting treaties, as they neither solve all interpretation challenges nor provide a cor-

36 Richard K. Gardiner. *Treaty Interpretation* (Oxford: Oxford University Press, 2017), 27.
37 Richard K. Gardiner. *Treaty Interpretation* (Oxford: Oxford University Press, 2017), 27.
38 Richard K. Gardiner. *Treaty Interpretation* (Oxford: Oxford University Press, 2017), 8.
39 Richard K. Gardiner. *Treaty Interpretation.* (Oxford: Oxford University Press, 2017), 8.
40 Richard K. Gardiner. *Treaty Interpretation.* (Oxford: Oxford University Press, 2017), 9.

rect outcome in every case. They yet have scope for improvements because they cannot produce a scientifically verifiable result every time.[41]

Article 31 (1) of the VCLT provides the following:

> "A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and the light of its object and purpose."

Article 31 (1) also reflects the principle that the determination of the ordinary meaning of a term is undertaken in the context of a treaty and the light of its object and purpose. There is no hierarchy between the various elements of Article 31 (1). Rather, they reflect a logical progression. The ultimate objective is that the natural meaning of the treaty, as consented to by the contracting Parties, prevails and that the spirit of the treaty is finally upheld.[42] In the '*Competence of the General Assembly for the Admission of a State to the United Nations*' case, the Court held the unequivocal observation that the first duty of a tribunal which is called upon to interpret and apply the provisions of a treaty is to give effect to them in their natural and ordinary meaning in the context in which they occur.[43]

The exact contours of how to interpret a treaty in good faith are difficult, but an element of reasonableness must be inherent when an interpretation is offered.[44] In consequence, the starting point of interpretation is the elucidation of the meaning of the text, and not an investigation *ab initio* into the intentions of the Parties.[45]

The context for the purpose of a treaty is set out in some detail in Article 31 (2), which embraces any instrument of relevance to the conclusion of a treaty as well as the treaty's Preamble and Annexes.

> Article 31(2) of the VCLT:
>
> "2. The context for the purpose of the interpretation of a treaty shall comprise, in addition to the text, including its preamble and annexes:

41 Richard K. Gardiner. *Treaty Interpretation*. (Oxford: Oxford University Press, 2017), 6-7.

42 Malcolm N. Shaw. *International Law, 6th Edition 2008*. International Law. Accessed November 02, 2018. http://www.academia.edu/3386070/Malcolm_N._Shaw_-_International_Law_6th_edition_2008

43 *Asylum, Colombia vs Peru,* Merits, Judgment, [1950] ICJ Rep 266, ICGJ 194 (ICJ 1950), 20th November 1950, International Court of Justice [ICJ], Oxford Public International Law, June 6, 2017, https://opil.ouplaw.com/view/10.1093/law:icgj/194icj50.case.1/law-icgj-194icj50

44 Richard K. Gardiner. *Treaty Interpretation*. (Oxford: Oxford University Press, 2017), 152.

45 International Law Commission. *'Draft articles on Responsibility of States for Internationally Wrongful Acts'* with commentaries. 2011 UN DOC A/56/10.

(a) Any agreement relating to the treaty which was made between all the parties in connexion with the conclusion of the treaty;
(b) Any instrument which was made by one or more parties in connexion with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty."

Article 31 (3) addresses what should be taken into account together with the context. It includes subsequent agreements between the Parties; subsequent practice in the application of the treaty; and, any relevant rules of international law applicable in the relations between the Parties.[46]

Article 31(3) of the VCLT mandates the following:

"3. There shall be taken into account, together with the context:
(a) any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions;
(b) any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation;
(c) any relevant rules of international law applicable in the relations between the parties."

Apart from the general rules of interpretation in Article 31, there are supplementary means of interpretation to which recourse may be had. Article 32 of the VCLT provides the conditions governing their use, but are not as restrictive as they may seem. The provision does not give an exhaustive list of supplementary means of interpretation. However, it mentions the most commonly used, that is, the preparatory work.

Article 32 – Supplementary means of interpretation

"Recourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion, in order to confirm the meaning resulting from the application of Article 31, or to determine the meaning when the interpretation according to Article 31:
(a) leaves the meaning ambiguous or obscure; or
(b) leads to a result which is manifestly absurd or unreasonable."

Using different languages in recording the same agreement can have both disadvantages and advantages since language is a medium that can be coloured by differences in culture, society, philosophy and perhaps even thought processes. The comparison of authoritative texts in different languages of a treaty can play a crucial role by removing uncertainties in one

46 Martin Dixon, , Malcolm David Evans, and James Crawford. *International Law:* Compiled from *Brownlie's Principles of Public International Law,* Eighth Edition; James Crawford, *Textbook on International Law*, Seventh Edition; Martin Dixon, *International Law*, Fourth Edition, Edited by Malcolm Evans (Oxford: Oxford University Press, 2015), 179.

or more of them. It can also throw up ambiguities or alternative possibilities which may not arise or be clearer if a single language has been used.[47] Article 33 addresses the rules of interpretations of treaties that have been authenticated in two or more languages:

> Article 33 – Interpretation of treaties authenticated in two or more languages
>
> "1. When a treaty has been authenticated in two or more languages, the text is equally authoritative in each language, unless the treaty provides or the parties agree that, in case of divergence, a particular text shall prevail.
> 2. A version of the treaty in a language other than one of those in which the text was authenticated shall be considered an authentic text only if the treaty so provides or the parties so agree.
> 3. The terms of the treaty are presumed to have the same meaning in each authentic text.
> 4. Except where a particular text prevails in accordance with paragraph 1 when a comparison of the authentic texts discloses a difference of meaning which the application of Articles 31 and 32 does not remove, the meaning which best reconciles the texts, having regard to the object and purpose of the treaty, shall be adopted."

The author considers that any intent of interpretation of the Chicago Convention 1944 must follow the rules of interpretation laid down at the VCLT, as they are customary international law and provide an accepted method and guidelines for interpretation that most States will acknowledge favourably. Moreover, the author is inclined towards an interpretation that first considers the ordinary meaning of the words because they reflect the real intent of the drafters and Parties to a legal instrument, in line with the principles embodied in the VCLT.

Finally, Article 31 of the VCLT reflects the principle that the determination of the ordinary meaning of a term is undertaken in the context of a treaty and the light of its object and purpose.[48]

F.5 TREATY INTERPRETATION BY INTERNATIONAL ORGANISATIONS

The United Nations (UN) and its organs regularly resort to the VCLT rules when interpreting the UN Charter and its associated instruments. The resolutions of the Security Council of the United Nations, for example, always raise controversial aspects of interpretation, particularly those related to the binding nature of Council resolutions to the UN member States. These resolutions address implementing sanctions, which States Parties to the Charter and by the sanctions committees established by the Security Council may

47 Richard K. Gardiner, *Treaty Interpretation*. (Oxford: Oxford University Press, 2017), 354.
48 Richard K. Gardiner, *Treaty Interpretation*. (Oxford: Oxford University Press, 2017), 22.

also interpret.[49] Likewise, other international organisations have extensive experience in interpreting their constituent treaties, but the documents registering the process of interpretation are not always accessible.[50]

Traditionally, international organisations have structures and powers defined in their constitutive instruments:[51] for example, ICAO, created by the Chicago Convention 1944. International organisations also have organs, called upon within the ambit of their functions and competence to interpret treaties which concern them, although the interpretations of judicial entities may be binding on such organs. If the treaty provides a reliable means of interpretation, the consistent jurisprudence of the authorised tribunal or judicial entity may offer illustrations of issues of interpretation in case law. [52]

Why is ICAO the organisation called upon to interpret the Chicago Convention 1944? The Chicago Convention 1944 set up the composition and functioning of ICAO as a UN system specialised organisation.[53] According to Professor Michael Milde, the Chicago Convention 1944 established ICAO as the following:

> "...an international organisation with wide quasi-legislative and executive powers in the technical, regulatory field and with only consultative and advisory functions in the economic sphere."[54]

As to its quasi-judicial authority, ICAO has been asked to exercise its quasi-judicial dispute resolution functions regarding opportunities in which ICAO had to resort to the interpretation rules of the VCLT.[55]

---

49 *Repertory of Practice of United Nations Organs and Repertoire of the Practice of the Security Council: – United Nations Digital Library System.* United Nations. Accessed October 28, 2018. http://digitallibrary.un.org/record/754889?ln=en.

50 Journal of Transnational Law & Policy. Accessed October 28, 2018. http://www.law.fsu.edu/co-curriculars/jtlp

51 Richard K. Gardiner. *Treaty Interpretation.* (Oxford: Oxford University Press, 2017), 111.

52 Richard K. Gardiner. *Treaty Interpretation.* (Oxford: Oxford University Press, 2017), 111. See also Paul, *Introduction to the Law of Treaties.* (London: Pinter Publishers, 1989), 96.

53 See Articles 43-96 of the Chicago Convention 1944.

54 Milde, Michael. '*The Chicago Convention -- After Forty Years*' (Annals of Air & Space, 1984), 119-121.

55 *India vs Pakistan* (1952) involving Pakistan's refusal to allow Indian commercial aircraft to fly over Pakistan; United Kingdom vs Spain (1969) involving Spain's restriction of air space at Gibraltar; Pakistan vs India (1971) involving India's refusal to allow Pakistani commercial aircraft to fly over India; Cuba vs United States (1998) involving the US refusal to allow Cuba's commercial aircraft to fly over the United States; and United States vs Fifteen European States (2003) involving EU noise emission regulations. We shall review these decisions in Chapter XI, below. In no decision did the ICAO Council render a formal decision on the merits. However, ICAO was able to mediate the disputes. As a political body, ICAO may be ill-equipped to serve as a neutral adjudicator of disputes in the manner envisioned by its founders.

States participating in the Chicago Conference 1944 acknowledged the need for uniform technical standards. As a result, the Chicago Convention 1944 extended ICAO's jurisdiction to adopt and amend from time to time, as necessary, SARPs and procedures on several matters, including aircraft licensing, airworthiness certification, registration of aircraft, international operating standards and airways and communications controls. A State shall follow ICAO's standards unless it has notified the Council about its inability to comply with the standard or procedure.[56] ICAO also issues PANS [57] and Regional Supplementary Procedures (SUPPs).[58] ICAO, correspondingly, serves as the forum for drafting international conventions on aviation issues.[59] Chapter XVIII of the Chicago Convention 1944 establishes a mechanism for dispute resolution of disagreements arising between member States on issues of interpretation of the Convention or its Annexes.[60]

ICAO's goal for UA is to deliver international regulations through SARPs, supporting PANS and guidance material to enable the routine operation

56 See Articles 37 and 38 of the Chicago Convention 1944.

57 *Procedures for Air Navigation Services* (PANS) comprise operating practices and material too detailed for Standards or Recommended Practices; they often amplify the basic principles in the corresponding Standards and Recommended Practices. To qualify for PANS status, the material should be suitable for application on a worldwide basis. The Council invites contracting States to publish any differences in their Aeronautical Information Publications when knowledge of the differences is important to the safety of air navigation.

58 *Regional Supplementary Procedures* (or SUPPs) have application in the respective ICAO regions. Although the material in Regional Supplementary Procedures is similar to that in the Procedures for Air Navigation Services, SUPPs do not have the worldwide applicability of PANS.

59 For example, in the area of aviation security, ICAO served as the institution that prepared and facilitated the adoption and acceptance of the *Tokyo Convention of 1963*, the *Hague Convention of 1970*, and the *Montreal Convention of 1971*. The several conventions and protocols which have sought to update the *Warsaw Convention of 1929* on carrier liability have been drafted under ICAO auspices. These include the *Hague Protocol of 1955*, the *Guadalajara Convention of 1961*, the *Guatemala City Protocol of 1971*, the *Montreal Protocols of 1975*, and the *Montreal Convention of 1999.* In addition to the role it has played in regulating the technical aspects of international civil aviation, ICAO has also succeeded in simplifying numerous economic aspects of the industry, such as facilitating customs procedures and visas. ICAO also assists the aviation industry by serving as a center for the collection and standardization of statistical data.

60 See Article 84 on *Settlement of Disputes*. Moreover, the Chicago Convention 1944 was preceded by the Interim Agreement on International Civil Aviation, 171 U.N.T.S. 345 (Dec. 7, 1944), which established the interim Council on the Provisional International Civil Aviation Organization (PICAO) and gave it broad jurisdiction over the settlement of aviation disputes. Article III § 6(8) thereof gave the interim Council power to 'act as an arbitral body on any differences arising among member States relating to international civil aviation matters which may be submitted to it', and Article VII § 9 gave the Council authority to review airport use charges and 'report and make recommendations thereon...'. Gerald FitzGerald, The Judgment of the International Court of Justice in the Appeal Relating to the Jurisdiction of the ICAO Council, 1974 CAN. Y.B. INT'L L. 153, 154-55 (1974) [hereinafter cited as 'ICAO Jurisdiction'].

of UAS throughout the world in a safe, harmonised and seamless manner, comparable to that of manned operations.[61]

F.6 SUBSEQUENT PRACTICE IN TREATY INTERPRETATION

The ILC has held that subsequent practice confirming the agreement of the Parties concerning the understanding of a treaty is a reliable means of interpretation together with the interpretative agreements.[62]

Article 31(3), on the general rule of interpretation of the VCLT, provides the following:

> "There shall be taken into account, together with the context:
> a) any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions;
> b) any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation;"

Article 31(3)(a) addresses the interpretative agreements reached between Parties after the conclusion of a treaty but not associated with the conclusion of such a treaty. It includes treaties which incorporate understandings either on interpretation or application of a treaty. However, the subsequent practice that establishes the understanding of the Parties on interpreting a treaty is a category distinct from the matters covered in Article 31(3)(a). For treaty interpretation purposes, such practice is evidence of the agreement and can serve as a means that meets an analogous role for officially registered agreements.[63]

The ICJ confirmed the role of subsequent practice in treaty interpretation in a judgement in 1999:

> "As regards the 'subsequent practice'...the Commission...indicated its particular importance in the following terms: The importance of such subsequent practice in the application of the treaty, as an element of interpretation, is obvious; for it constitutes objective evidence of the understanding of the parties as to the meaning of the treaty. Recourse to it as a means of interpretation is well-established in the jurisprudence of international tribunals."[64]

---

61 ICAO Circular 328. *Unmanned Aircraft Systems (UAS).* Accessed April 19, 2018. https://skybrary.aero/bookshelf/content/bookDetails.php?bookId=3202

62 Richard K. Gardiner. *Treaty Interpretation.* (Oxford: Oxford University Press, 2017), 203. See also Yearbook of the International Law Commission, 1978, Vol. II, Part I: Documents of the 30th Session, excluding the Report of the Commission to the General Assembly. (New York: UN, 1980), 222.

63 Richard K. Gardiner. *Treaty Interpretation.* (Oxford: Oxford University Press, 2017), 232.

64 Richard K. Gardiner. *Treaty Interpretation."* Oxford: Oxford University Press, 2017. 225. See also *Kasikili/Sedudu Island (Botswana/Namibia)* [1999] ICJ Reports 1045, at 1076, para 49.

As specified by the ILC:

> 'the practice must be such as to indicate that the interpretation has received the tacit assent of the parties generally'.[65]

Therefore, the following elements shall be taken into account when resorting to subsequent practice under the VCLT:

- *Meaning of subsequent practice:* The defining test for the practice concerning the interpretation of a treaty provision is that the subsequent practice must establish an understanding of the Parties to the treaty. Under this point of view, the evidence shows the behaviour of the Parties in the application of the same procedures in pursuance of the treaty or, if the conduct is unilateral, it reveals the approval of the other party(ies).[66]
- *Frequency and uniformity of practice:* The importance of subsequent practice under Article 31(3)(b) depends on the repetition of such practice.[67]
- *Practice may consist of executive, legislative, and judicial acts:* Any institution with the authority of the State may carry out relevant acts if these show a position concerning the State's treaty commitments or entitlements.[68]
- *Subsequent practice and subsequent conduct distinguished:* A practice is a sequence of facts or acts that can neither be set by several individual applications nor by one isolated fact or act. Courts and tribunals note the conduct and attitude of a party in subsequent practice.[69]
- *Practice in the application of the treaty:* The consistent practice in the treaty's application shows that this is not limited to handling a specific provision or provisions in issue.[70]

F.7 THE PRINCIPLES OF *LEX POSTERIOR DEROGAT PRIORI* AND *LEX SPECIALIS DEROGAT GENERALIS*

When more than one rule is *prima facie* applicable to a given situation, one of the two following principles of law can be applied to determine the most suitable rule:

1. *Lex posterior derogat priori*
2. *Lex specialis derogat generalis*

---

65 Richard K. Gardiner. *Treaty Interpretation.* Oxford: Oxford University Press, 2017. 226.
66 Richard K. Gardiner. *Treaty Interpretation.* Oxford: Oxford University Press, 2017. 255
67 Richard K. Gardiner. *Treaty Interpretation.* Oxford: Oxford University Press, 2017. 227.
68 Richard K. Gardiner. *Treaty Interpretation.* Oxford: Oxford University Press, 2017. 258
69 Richard K. Gardiner. *Treaty Interpretation.* Oxford: Oxford University Press, 2017. 228. See also Ian Sinclair, *The Vienna Convention on the Law of Treaties* (Manchester: Manchester University Press, 1973), 137.
70 Richard K. Gardiner. *Treaty Interpretation.* (Oxford: Oxford University Press, 2017), 232

The first principle implies that the later rule overrides the earlier rule, whereas the second indicates that a special rule overrides the general rule. When these principles are applied for legislative interpretation, the intention of a new law is usually to replace or modify an earlier one, while the legislation for a special case or special regime is intended to be the exception to any general regime.[71] The present study examines whether these principles apply to the legal provisions regarding the international operation of UAS.

The author suggests that the principle of *lex posterior derogat priori* does not apply in the case of the operations of UAS, as the provisions pertaining to flight over the territories of the contracting States of the Chicago Convention 1944 (namely, Articles 5, 6, 7 and 8) were adopted on December 7, 1944 and have remained intact.[72] However, the principle of *lex specialis derogat generalis* may apply to Article 8 of the Chicago Convention 1944, which refers to pilotless aircraft in relation to Articles 5, 6 and 7 and will be elaborated in Chapter *Four*.

In the following chapter, the author will explore the history, current uses and technological challenges of UA.

71 Malcolm Evans. 'International Law'. In *International Law* (Oxford: Oxford University Press, 2018), 109.

72 See the Chicago Convention 1944.