



ASJ the AVIATION & SPACE JOURNAL

Aviation

Space

Miscellaneous Material of Interest

Events

Managing Editor:

Anna Masutti

Co-editor:

Pablo Mendes de Leon

Board of Editors:

Sandeepa Bath
Donatella Catapano
Vincent Correia
Nikolai P. Ehlers
María Jesús Guerrero Lebrón
Liu Hao
Stephan Hobe
Anna Konert
George Leloudas
Sergio Marchisio
Sofia M. Mateou
Alan Meneghetti
Sorana Pop
Alessio Quaranta
Iva Savić
Kai-Uwe Schrogl
Francis Schubert
Benjamyn Scott
Filippo Tomasello
Andrea Trimarchi
Alexander Von Ziegler
Stefano Zunarelli
Serap Zuvín

Support Committee:

Ridha Aditya Nugraha
Hajime Akamatsu
Ottavia Carla Bonacci
Niall Buissing
Sara Dalledonne
Wataru Inagaki
Vikrant Pachnanda
Luping Zhang

Aviation

- The Contested Validity of Airline Conditions of Carriage in the Context of Aircraft Type Change: An Observation Based on the Chinese Case China Eastern Airlines Co., Ltd. v. LIU**
Sichen Dang p. 4
- Drawing Borders in the Sky: Operating Licence as Eligibility Criterium for Pandemic State Aid in the Air Transport Sector**
Jure Bergant p. 15
- The Paperless Paradigm: Balancing Privacy, Security, Efficiency, and Convenience In Air Travel in the Digital Transformation Age**
Monika Markiewicz p. 24
- A Concise Guide to the Civil Aviation Act of Iran**
Milad Sadeghi & Vahideh Najafi p. 36
- Eu Sanctions Against Russia in the Aviation Industry**
Sergi Giménez p. 41

Space

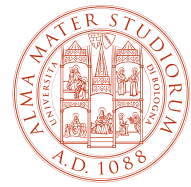
- The Feasibility of a Common EU Space Law: Legal Barriers, Political Will, Opportunities, and Challenges**
Berfin Bediz Yildiz Keskin p. 53
- Ordering the Infinite: A Conceptual Approach to Outer Space Regulation**
Michael Hammer p. 63

Miscellaneous Material of Interest

- Slot Regulation and the Maximization of the Capacity of the Airport Infrastructure: the Slots White Paper Published by IATA**
Gilda Caso & Giulia Zucca p. 75
- 1964-2024: Tracing the Origins of a 60-Year Space Journey – The Luigi Broglio Space Center in Malindi (Kenya)**
Luisa Santoro, Munzer Jahjah & Paolo D'Angelo p. 79
- Book review: Civil Regulation of Autonomous Unmanned Aircraft Systems in Europe**
Elena Orrù p. 86
- Book review: Elgar Concise Encyclopedia of Space Law**
Jakub Handrlica p. 88

Events

- The European Space Conference 2025, Brussels, 28-29 January 2025**
Luisa Santoro p. 90
- IBA, International Bar Association Annual Conference 2025**
Toronto, 2–7 November 2025 p. 91
- EALA, European Air Law Association Annual Conference 2025**
Vienna, 7 November 2025 p. 92



Aviation

The Contested Validity of Airline Conditions of Carriage in the Context of Aircraft Type Change: An Observation Based on the Chinese Case China Eastern Airlines Co., Ltd. v. LIU

Sichen Dang

Drawing Borders in the Sky: Operating Licence as Eligibility Criterium for Pandemic State Aid in the Air Transport Sector

Jure Bergant

The Paperless Paradigm: Balancing Privacy, Security, Efficiency, and Convenience In Air Travel in the Digital Transformation Age

Monika Markiewicz

A Concise Guide to the Civil Aviation Act of Iran

Milad Sadeghi & Vahideh Najafi

Eu Sanctions Against Russia in the Aviation Industry

Sergi Giménez

The Contested Validity of Airline Conditions of Carriage in the Context of Aircraft Type Change: An Observation Based on the Chinese Case *China Eastern Airlines Co., Ltd. v. LIU*

Sichen Dang*

Abstract

Many Chinese airlines' Conditions of Carriage (hereinafter 'CoCs') state that the aircraft type is not part of the contract of carriage. In *China Eastern Airlines Co., Ltd. v. LIU* (2023), the Court of First Instance and the Appellate Court both held that the airline is liable for protecting (business class) passengers' 'onboard experience', and the aircraft type change breached the contract of carriage for a 'lower onboard experience'. Based on an analysis of the functions and characteristics of CoCs, this article presents the *LIU* case and explores CoCs' general legal validity, CoCs' validity of exemption from fraud liability, and CoCs' validity of exemption from liability for breach of contract. The conclusion is that CoCs, as valid standard terms, may exempt an airline from fraud liability. An airline, however, may be liable for breach of contract if the aircraft type change fails to fulfill passengers' 'onboard experience'. Airlines and passengers should exercise rights and obligations under the contract of carriage carefully to avoid potential disputes related to the aircraft type change.

Introduction

The Warsaw Convention of 1929 (WC29)¹ and the Montreal Convention of 1999 (MC99)² have unified 'certain' rules governing the contractual liability of international air carriage. Non-performance or defect performance of air carriage contracts, however, fall outside the scope of WC29 and MC99 and are therefore 'supplemented and regulated' by domestic laws of the contracting states.³ Conditions of Carriage (CoCs) of air carriers also fill the gaps of the above conventions by defining the details of the rights and obligations between the passengers and the air carriers, as parties involved in international air carriages.⁴

CoCs, also known as 'General Conditions of Carriage' 'Terms and Conditions of Carriage', etc., are defined by the International Civil Aviation Organization (ICAO) as the "terms and conditions established by an air carrier in respect of its carriage".⁵ The world's first template of CoCs for passenger and baggage transportation was formulated by the International Air Transport Association (hereinafter the 'old IATA') in 1927.⁶ Most member airlines of the old IATA utilized this template when concluding contracts with passengers. After the old IATA was superseded by the International Air Transport Association (hereinafter the 'new IATA') in April 1945, the new IATA has been constantly updating and amending new templates of CoCs with the development of the international air transport market.⁷ At the Passenger Service Conference

* LLM Candidate at the School of International Law, East China University of Political Science and Law (ECUPL), Shanghai, China. Email: dangsichen@163.com. The author would like to express sincere gratitude and appreciation to Mr Hao Zhou, an LLM of the International Institute of Air and Space Law, Leiden University, for his kind proofreading during the writing of this article. The views expressed in this article are solely those of the author and do not reflect the views of any association with which the author is affiliated.

1 Convention for the Unification of Certain Rules Relating to International Carriage by Air, Warsaw, 12 Oct. 1929, entered into force on 13 Feb. 1933, ICAO Doc. 7838.

2 Convention for the Unification of Certain Rules for International Carriage by Air, Montreal, 28 May 1999, entered into force on 4 Nov. 2003, ICAO Doc. 9740.

3 Pai Zheng, *Carrier Liability in International Air Passenger Carriage* (Beijing: Law Press-China 2016) 93 (in Chinese).

4 See Jose Tomas Baganha, 'Overbooking: A Singular Mode of Non-Compliance with the Contract of Air Carriage of Passenger', (1998) 14 *World Bulletin: Bulletin of the International Studies of the Philippines* 106.

5 ICAO, 'Worldwide Air Transport Conference: Challenges and Opportunities of Liberalization' <https://www.icao.int/Meetings/ATConf5/Documents/ATConf5_wp013_en.pdf> accessed 24 Oct. 2024.

6 P. P. C. Haanappel, *Air Passenger Rights in the Electronic Age*, (2018) 43 *Air & Space Law* 4.

7 See IATA, 'The Founding of IATA', <https://www.iata.org/en/about/history/?_cf_chl_tk=o8H9173YwCeZZ5jbpwiZALMSdBjULyO1ZwFk0hYoW-do-1723949821-0.0.1.1-10260> accessed 24 Oct. 2024.

(PSC) in 1986, the new IATA adopted Recommended Practice 1724 on *General Conditions of Carriage (Passenger and Baggage)*,⁸ which encompassed various aspects of international air carriage. A large number of airlines worldwide have drawn on the format and content of Recommended Practice 1724 when formulating their domestic and international CoCs these days, even though it is not mandatory and does not apply on domestic flights of any carriers and international flights of non-member carriers.⁹

According to ICAO, CoCs “spell out the various benefits and limitations associated with the air transportation being provided.... constitute a ‘contract for carriage’ between the air carrier and the user.”¹⁰ In the judicial practices of China,¹¹ the United States,¹² and the European Union,¹³ CoCs are usually regarded as part of the contract of carriage. Since carriers are considered public transport service providers, there is also a consumer-business contractual relationship between passengers and airlines, other than the passenger-carrier contractual relationship.¹⁴ CoCs, therefore, constitute a consumer contract between passengers and airlines. Besides, Chinese courts regard CoCs as standard terms pre-drafted by airlines for repeated use and to improve the efficiency and convenience of transactions.¹⁵

Many CoCs stipulate that the aircraft type for a flight may change after it is announced, or the airline might assign other types of aircraft to operate the flight.¹⁶ Most Chinese airlines’ CoCs exclude the aircraft type from part of the contract of carriage.¹⁷ In practice, an airline may change the aircraft type for various reasons. If such exclusions are valid, it will be difficult for passengers to obtain compensation from an airline for losses resulting from the aircraft type change. Recently, Chinese courts have resolved a number of disputes concerning the aircraft type change. Assessing the validity of CoCs that exempt liability for such changes has emerged as the prime focus in dispute resolution.

In *China Eastern Airlines Co., Ltd. v. LIU (2023)*, the Pudong New District People’s Court of Shanghai Municipality (hereinafter the ‘Court of First Instance’) and the First Intermediate People’s Court of Shanghai Municipality (hereinafter the ‘Appellate Court’) both held that the aircraft type change by China Eastern Airlines Co., Ltd. (hereinafter ‘China Eastern Airlines’) breached the contract of carriage. This decision indicates that an airline’s exclusion of aircraft type from the contract may not always be valid. Based on both Courts’ decisions, this article examines CoCs’ general validity, CoCs’ validity of exemption from fraud liability, and CoCs’ validity of exemption from liability for breach of contract. After re-

⁸ See ICAO, *supra* note 5.

⁹ See Briefing Paper, Air passenger rights, compensation & complaints, <<https://researchbriefings.files.parliament.uk/documents/CBP-8576/CBP-8576.pdf>> accessed 24 Oct. 2024.

¹⁰ ICAO, *supra* note 5.

¹¹ See *China Eastern Airlines Co., Ltd. v. SUN*, the Third Intermediate People’s Court of Beijing Municipality, Civil Judgment No. 11892 [2021], Final, Civil, 03 (in Chinese); See also *John Doe v. China Eastern Airlines Co., Ltd.*, the Pudong New District People’s Court of Shanghai Municipality, Civil Judgment No. 92199 [2019], First, Civil, 0115 (in Chinese).

¹² See *Chen v China E. Airlines Co., Ltd.*, 45 Misc. 3d 1221(A); *Capua v. Air Europa Lineas Aereas S.A. Inc.*, 2021 U.S. App. LEXIS 21171; *Clowdus v. Am. Airlines, Inc.*, 2023 U.S. App. LEXIS 20232.

¹³ See InfoCuria Case-law, ‘Judgment of the Court (Third Chamber)’, <<https://curia.europa.eu/juris/document/document.jsf?text=conditions%2Bof%2Bcarriage&docid=284651&pageIndex=0&doclang=EN&mode=req&dir=&occ=first&part=1&cid=4138935#ctx1>> accessed 24 Oct. 2024.

¹⁴ See *YUAN v. China Eastern Airlines Co., Ltd.*, the Third Intermediate People’s Court of Beijing Municipality, Civil Ruling No. 9230 [2022], Final, Civil, 03 (in Chinese); See also, *China Southern Co., Ltd. v. WANG*, The First Intermediate People’s Court of Shanghai Municipality, Civil Judgment No. 15663 [2021], Final, Civil, 01 (in Chinese).

¹⁵ See *ZHOU v. John Doe Co., Ltd.*, the Primary People’s Court of Changning District of Shanghai Municipality, Civil Judgment No. 23991 [2023], First, Civil, 0105 (in Chinese); See also, *FENG v. Spring Airlines Co., Ltd.* The Primary People’s Court of Baoan Zone of Shenzhen City of Guangdong Province, Civil Judgment No. 1719 [2022], First, Civil, 0306 (in Chinese); See also, *CHENG v. Air China Ltd.* the Third Intermediate People’s Court of Beijing Municipality, Civil Judgment No. 4684, Final, Civil, 03 (in Chinese).

¹⁶ See Swiss, ‘General Conditions of Carriage’, <<https://www.swiss.com/de/en/terms-conditions/conditions-of-carriage>> accessed 24 Oct. 2024; See also, Eurowings, ‘General Conditions of Carriage - Legal information - Eurowings’, <<https://www.eurowings.com/en/legal-information/general-conditions-of-carriage.pdf>> accessed 24 Oct. 2024.

¹⁷ See XIAMENAIR, ‘Xiamen Airlines General Conditions of Carriage for Domestic Passengers and Baggage’, <<https://www.xiamenair.com/zh-ww/article-detail?articleLink=%2Fcms-i18n-ow%2Fcms-zh-ww%2Fchannels%2F10884.json>> accessed 24 Oct. 2024; See also, China Eastern Airlines, ‘China Eastern Airlines Domestic Transportation Conditions’, <<https://www.ceair.com/global/static/Announcement/TravelTips/dsGeneralCondition/chinaEasternLuggageRules/domesticRules/index.html>> accessed 24 Oct. 2024.

viewing the possibility for carriers to exempt their liability in case of losses arising from aircraft type change, this article proposes advice to minimize potential disputes between passengers and airlines.

1. The *LIU Case*

1.1. Facts

Liu purchased two tickets via the Fliggy app for a flight from Shanghai Hongqiao International Airport to Chengdu Shuangliu International Airport, operated by China Eastern Airlines on 30 December 2021. The flight number specified on the tickets was MU5409, the aircraft type was Airbus A350 (a wide-body aircraft), and the cabin class was business class. Liu and his companion boarded the flight as scheduled, and discovered that the aircraft was changed to an Airbus A320 (a narrow-body aircraft). Liu inquired with the flight attendant about the reason for the aircraft type change without receiving a satisfying answer. After the flight arrived in Chengdu, Liu contacted China Eastern Airlines about compensation for the aircraft type change but was refused. Liu, as the plaintiff, brought the dispute before the Court of First Instance, requesting the defendants, China Eastern Airlines and Zhejiang Fliggy Network Technology Co., Ltd. (hereinafter ‘Fliggy Company’) to jointly refund the ticket price of CNY 3,840. Liu also requested a threefold compensation for fraud, amounting to CNY 11,520, with CNY 15,360 in total (Approximately EUR 1,996.39).

1.2. First Instance Decision

Liu, the plaintiff, requested compensation based on three main reasons. First, the aircraft type was a crucial factor in Liu’s decision to purchase the tickets and formed part of the contract of carriage. Second, the aircraft type had commercial value, and the change made by China Eastern Airlines violated the principle of good faith. Third, even if China Eastern Airlines had a legitimate reason to change the aircraft type, China Eastern Airlines and Fliggy Company should have fulfilled their obligation to notify the passengers involved. China Eastern Airlines, one of the defendants, argued that pursuant to the *Civil Aviation Law of the People’s Republic of China* (hereinafter the ‘*Civil Aviation Law*’), CoCs apply to all passengers. Additionally, China Eastern Airlines’ CoCs explicitly stated that the aircraft type does not constitute part of the contract of carriage. The above term of CoCs was published on various platforms, including websites and apps. When booking the tickets, Liu has clicked the checkbox, indicating awareness and acceptance of the CoCs. Liu, therefore, has agreed that the aircraft type is not part of the contract of carriage. Fliggy Company, the other defendant, did not present any arguments.

On 14 October 2022, the Court of First Instance ruled that China Eastern Airlines did not commit fraud, but rather committed a breach of contract for the following reasons:

“The aircraft type constitutes a commitment by airlines to enhance passengers’ travel experience and to render its services more appealing to passengers. This commitment is part of an airline’s contract of carriage. If an airline needs to change the aircraft type for any reason, it shall notify passengers in advance within a reasonable time-frame. China Eastern Airlines, however, failed to do so. In this case, the aircraft type change constitutes a breach of contract, as it changes the aircraft as specified and lowers the service standard. The airline is therefore liable for breach of contract ... China Eastern Airlines was transparent about all circumstances and did not mislead passengers when signing the contract. Liu’s claim that the airline and Fliggy Company committed fraud, along with his demand for a refund and triple compensation, is unfounded and lacks support.”¹⁸

The Court of First Instance, taking into account factors such as the flight time, the itinerary, and the ticket price, held that China Eastern Airlines shall compensate CNY 1,000 (Approximately EUR 129.97).¹⁹

¹⁸ See *China Eastern Airlines Co., Ltd. v. LIU*, the First Intermediate People’s Court of Shanghai Municipality, Civil Judgment No. 1106 [2023], Final, Civil, 01 (in Chinese).

¹⁹ *Ibid.*

1.3. Decision on Final Appeal

China Eastern Airlines appealed the first instance ruling to the Appellate Court, requesting the court to reject all of Liu's claims. The appellant, China Eastern Airlines, presented several arguments. First, the airline fulfilled all of its contractual obligations by providing a business class seat and safely transporting Liu to the destination. Second, China Eastern Airlines' CoCs explicitly state that the aircraft type does not constitute part of the contract of carriage. Third, aircraft type change is a common practice in the international civil aviation industry, and the change by China Eastern Airlines is in line with industry practice. Liu argued that the onboard experience of business class varies significantly between different aircraft types, and the exclusion of the aircraft type has great restrictions and impacts on passengers. China Eastern Airlines failed to fulfill its obligations to notify and explain such change to passengers. The aforementioned clause is therefore invalid, and the aircraft type constitutes part of the contract of carriage.

On 10 March 2023, the Appellate Court rejected the appeal of China Eastern Airlines based on the following reasons:

*"According to the parameters of the two aircraft types involved, combined with factors such as flight time and cabin class, the aircraft type change by China Eastern Airlines would undoubtedly exert adverse effects on Liu's seating comfort and travel experience, to a certain extent that the service standard was lowered. Moreover, the airline failed to notify Liu in advance, which constitutes an aggravation of a breach of contract. The Court of First Instance assessed the extent of China Eastern Airlines' breach of contract, taking into account factors such as the flight time, the itinerary, and the prices of the two tickets, and appropriately concluded that China Eastern Airlines is liable to compensate CNY 1,000. This decision was deemed appropriate and has been confirmed by this court."*²⁰

1.4. Legal Issues

In this case, Liu and China Eastern Airlines have disputed the airline's liability for fraud and breach of contract regarding the aircraft type change. The main issue in the case is whether the airline has the obligation to protect the passengers' 'onboard experience'. Both the Court of First Instance and the Appellate Court held that the aircraft type change by China Eastern Airlines did not constitute fraud. If this change, however, resulted in a decline in the 'onboard experience', the airline would be considered as providing 'lower service standards' and shall be liable for breach of contract. To ascertain the conditions under which CoCs may exempt airlines from being liable for fraud or breach of contract, it is necessary to analyze the general validity of CoCs under Chinese law.

2. Airline CoCs Under Chinese Laws

2.1. Overview

On 1 September 2021, the Ministry of Transport of the People's Republic of China issued the *Provisions on the Administration of Passenger Services in Public Air Transport* (hereinafter the '*Provisions on the Administration of Passenger Services*'). Pursuant to Articles 2 and 6 thereunder, air carriers formed under the laws of the People's Republic of China and foreign air carriers whose starting points or stop-overs of their flights are within the territory of China, shall develop and publish their CoCs and provide details of their relevant passenger services. As CoCs are considered in judicial practice as standard terms and part of a consumer contract/contract of carriage, the validity of CoCs relates directly to the validity of the contract.

The validity of CoCs is mainly regulated by three Chinese laws. The first is the *Civil Aviation Law of the People's Republic of China*, which regulates the invalidity of the contract of carriage by air. The second is the *Civil Code of the People's Republic of China* (hereinafter the '*Chinese Civil Code*'), which regulates the general invalidity of standard terms. The third is

²⁰ Ibid.

the *Law of the People's Republic of China on the Protection of Consumer Rights and Interests* (hereinafter the 'Consumer Rights and Interests Protection Law'), which regulates the invalidity of standard terms released by an airline as a public transport business operator.

2.2. Civil Aviation Law of the People's Republic of China

Civil Aviation Law Article 130 regulates the invalidity of the contract of carriage by air, which reads:

*"Any stipulation aimed at exempting liabilities of a carrier specified in this law or lowering the limits to related liability for damages specified in this law is null and void. But this nullification does not affect the validity of the entire air transport contract."*²¹

Pursuant to Chapter IX, Section 3 (Liabilities of the Carriers) of the *Civil Aviation Law*, the 'liabilities of a carrier' in Article 130 include an airline's liability in the event of death or injury of a passenger, damage to baggage and cargo, and damage to a passenger, baggage, and cargo due to delay. If an airline exempts or reduces its liability through CoCs in such circumstances, the relevant CoCs are invalid.

2.3. Civil Code of the People's Republic of China

Articles 496 and 497 of the *Chinese Civil Code* regulate the invalidity of standard terms, including *de facto* and *de jure* invalidity. Article 496(2) provides that:

*"Where standard terms are adopted for contracting, the party furnishing the standard terms shall define the rights and obligations between the parties under the principle of fairness, remind in a reasonable manner the other party to note the terms excluding or limiting the liability of the party furnishing the standard terms or otherwise related to the material interest of the other party and explain the terms upon request of the other party. If the party furnishing the standard terms fails to perform the reminding or explanation obligation, resulting in the other party failing to note or understand the terms in which it has a material interest, the other party may argue that the terms are not a part of the contract."*²²

Pursuant to this provision, CoCs shall conform to the principle of fairness, and an airline shall fulfill its obligation to remind and explain to passengers regarding the CoCs that exempt it from liability. Article 10 of the *Interpretation by the Supreme People's Court of Several Issues Concerning the Application of Title One General Provisions of Book Three Contracts of the Civil Code of the People's Republic of China* stipulates specific performance standards for the reminding obligation and explanation obligation. When fulfilling the reminding obligation, an airline shall use

*"writing, a symbol, a font, or any other conspicuous sign that is ordinarily sufficient to attract the attention of the other party when entering into the contract."*²³

When fulfilling the explanation obligation at the request of the other party, an airline shall

*"provides an ordinarily understandable written or oral explanation of the definitions, content, and legal consequences of the terms related to the material interest of the other party."*²⁴

²¹ Article 130 of the Civil Aviation Law of the People's Republic of China.

²² Article 496(2) of the Civil Code of the People's Republic of China.

²³ Article 10 of the Interpretation by the Supreme People's Court of Several Issues Concerning the Application of Title One General Provisions of Book Three Contracts of the Civil Code of the People's Republic of China.

²⁴ Ibid.



Article 497 of the *Chinese Civil Code* provides that:

*“Under any of the following circumstances, standard terms shall be void: (1) Under the voidness circumstances set forth in Section 3, Chapter VI, Book One of this Code and Article 506 of this Code. (2) The party furnishing the standard terms unreasonably excludes or limits its liability, aggravates the liability of the other party, or restricts the main rights of the other party. (3) The party furnishing the standard terms excludes the main rights of the other party.”*²⁵

The invalid circumstances regulated under Article 497(1) apply to all civil juristic acts. For example, civil acts that violate the public interest or are performed by a person without capacity for civil conduct shall be null and void.²⁶ The invalid circumstances under Articles 497(2) and 497(3) refer to the invalidity of standard terms, where a party furnishing the standard terms pursues unilateral interests, thereby violating the principle of fairness.²⁷ Article 497(2) imposes the restriction of “unreasonably” on the “excludes or limits its liability, aggravates the liability of the other party, or restricts the main rights of the other party”, meaning that a standard term shall only be invalid for violating the principle of fairness if the term relating to limitation or exemption of liability is not reasonable.²⁸

2.4. Law of the People’s Republic of China on the Protection of Consumer Rights and Interests

Article 26 of the *Consumer Rights and Interests Protection Law* regulates the validity of standard terms developed by a business operator, which reads:

“Business operators which use standard terms and conditions in business activities shall, in a conspicuous manner, remind consumers to pay attention to the quality, quantity, and prices or fees of commodities or services, duration and manner of performance, safety precautions and risk warnings, after-sales service, civil liability, and other terms and conditions vital to the interests of consumers, and provide explanations as required by consumers.

“Business operators shall not, by standard terms and conditions, notices, declarations, on-site posters, and other means, impose unfair or unreasonable rules on consumers to exclude or restrict consumer rights, reduce or waive the responsibilities of business operators, or aggravate the responsibilities of consumers, among others, and shall not force consumers into any transactions by standard terms and conditions and technical means.

“If the standard terms and conditions, notices, declarations, and on-site posters, among others, contain any rules as mentioned in the preceding paragraph, such rules shall be void.”

The content of Article 26 of the *Consumer Rights and Interests Protection Law* is similar to Articles 496 and 497 of the *Chinese Civil Code*, but there are certain differences. For instance, both Article 496(2) of the *Chinese Civil Code* and Article 26(1) of the *Consumer Rights and Interests Protection Law* outline the reminding obligation and explanation obligation. Article 496(2), however, specifies the legal consequences for failing to meet these obligations, while Article 26(1) does not. Furthermore, Article 497(2) of the *Chinese Civil Code* and Article 26(2) of the *Consumer Rights and Interests Protection Law* both stipulate that a party furnishing the standard terms shall not exclude or limit the liability of the other party. Article 497(2), however, recognized the validity of such terms under the condition of ‘reasonableness’, while Article 26(2) does not.

²⁵ Article 497 of the Civil Code of the People’s Republic of China.

²⁶ Articles 143 and 144 of the Civil Code of the People’s Republic of China.

²⁷ See Wei Huang, Interpretation and Application Guide of the Civil Code of the People’s Republic of China (Beijing: China Democratic and Legal Publishing House 2020) 754 (in Chinese).

²⁸ Ibid.

The *Chinese Civil Code* and the *Consumer Rights and Interests Protection Law* are both enacted by the National People's Congress of the People's Republic of China and hold the same level of authority. The *Chinese Civil Code*, however, follows a legislative system that integrates civil and commercial laws, meaning that Articles 496 and 497 apply to both civil and commercial activities. In contrast, Article 26 of the *Consumer Rights and Interests Protection Law* specifically pertains to transactions between consumers and business entities.²⁹ Under the principle of *Lex specialis derogat legi generali*, in the case where there is a conflict between the two laws regarding the validity of standard terms, the provisions of the *Consumer Rights and Interests Protection Law* shall prevail.³⁰

3. Airline CoCs' Validity in the *LIU* Case

3.1. Valid Standard Terms in General

Pursuant to Chinese Laws, CoCs that exempt an airline from liability for changing the aircraft type may be invalid under three circumstances. Firstly, the airline fails to fulfill its reminding obligation. Secondly, the airline fails to fulfill its explanation obligation. Thirdly, the CoCs violate the principle of fairness and prioritize unilateral interests. For any of the three circumstances, the CoCs will be invalid between passengers and the airline. To assess whether the CoCs fall under the first two invalid circumstances, studies on a case-by-case basis is required. This article concludes that the CoCs would not violate the principle of fairness, which would render the third circumstance moot.

Article 15 of the *Provisions on the Administration of Passenger Services* enumerates eight categories of service information that airlines and their agents shall provide to passengers. In response to passengers' inquiries regarding 'the lack of aircraft type information specified in Article 15', the Civil Aviation Administration of China (CAAC) stated that 'fleet assignment' is a common practice in the international civil aviation industry. This practice allows airlines to list multiple aircraft types in flight plans and to make temporary changes to the aircraft types when necessary. Factors such as flight delays, aircraft malfunctions, fuel costs, and unforeseen incidents can prompt these changes. As a result, airlines can control costs, effectively manage emergencies, and optimize resource allocation.³¹ If airlines are prohibited from changing aircraft types based on operating requirements, it may affect the efficiency of the aviation industry, raising the operating costs of airlines, and eventually leading to higher travel expenses for passengers and negatively impacting their travel experience.³² Airlines typically do not change aircraft types solely out of their own interests; they also take into account factors such as passenger safety, time constraints, and economic implications.

Moreover, while CoCs state that the aircraft type is not part of the contract of carriage, aircraft type changes do not inevitably result in a diminished 'onboard experience'. In some instances, passengers may enjoy an improved experience, such as complimentary cabin upgrades, due to aircraft type changes. In *China Eastern Airlines Co., Ltd. v. LIU*, both courts upheld the validity of the CoCs as standard terms. This article argues that as long as airlines fulfill their reminding obligation and explanation obligation, CoCs that exempt airlines from liability for changing the aircraft type are valid standard terms.

3.2. Exemption From Fraud Liability

A fraudulent act is defined as a situation in which "any party purposely conveys any false information to the other party, or purposely disguises any fact to induce the other party into making any false declaration of will."³³ In China's judicial practice, fraud committed by an airline consists of four elements. Firstly, the airline has a subjective intention to commit

²⁹ See Wei Huang, *supra* note 27, at 750-751.

³⁰ *Ibid.*

³¹ See CCAonline, 'The Civil Aviation Administration of China (CAAC): Permitting airlines to temporarily adjust the aircraft types is conducive to coping with emergencies', <<https://www.ccaonline.cn/zhengfu/669076.html>> accessed 25 Oct. 2024 (in Chinese).

³² *Ibid.*

³³ See Wei Huang, *supra* note 27, at 228.

fraud. Secondly, the airline objectively engages in fraudulent acts by fabricating facts or concealing the truth. Thirdly, passengers develop a misunderstanding due to the fraud. Fourthly, passengers express their intent based on the misunderstanding.³⁴

In *ZHONG v. China Southern Co., Ltd. (2021)*³⁵ and *ZHANG v. Air China Ltd. (2021)*,³⁶ the courts held that neither airline committed fraud when they changed the aircraft type. The main reason was that airlines' CoCs explicitly excluded the aircraft type from the contract and released the above term through various channels to inform passengers. In the *LIU* case, the Court of First Instance held that China Eastern Airlines did not commit fraud, as CoCs demonstrated that the aircraft type might be changed. CoCs, therefore, demonstrate that airlines did not intend to defraud passengers, which exempts airlines from liability for fraud.

Getting to the root of the matter, the reason why passengers considered airlines to have committed fraud was that the ticket typically explicitly indicated the aircraft type, while passengers failed to obtain the possibility of the aircraft type change. The potential doubt of the passengers lies in that if an airline has no intention of false advertising, why does it 'deliberately' display the aircraft type? Different aircraft types, in fact, have distinct differences, including variations in seat layouts, potential risk areas, minimum weather requirements for takeoff, technical qualifications for pilots, and the number of crew members required for emergency evacuations.³⁷

In other words, the aircraft type plays a crucial role in airlines' crisis prevention and response strategies. For instance, an airline's Flight Operations Control (FOC) system gathers and distributes aircraft information to ensure that aviation personnel have timely access to flight details and dynamics, which enhances aviation safety.³⁸ In summary, displaying aircraft types is more of a necessity for airlines to ensure safe operations rather than merely a choice driven by commercial interests. This perspective helps clarify why the aircraft type change does not constitute fraud – unless passengers can provide evidence showing that the airline had the intent to commit fraud.

3.3. Contested Validity of Exemption from Default Liability

Article 821 of the *Chinese Civil Code* stipulates: "Where the carrier unilaterally lowers the standards of service, it shall, upon request by the passenger, refund the ticket-fare or lower the price of the ticket." When an airline unilaterally reduces its service standards, the airline violates the contract and is therefore liable.³⁹ Whether the aircraft type change constitutes a breach of contract depends on whether it leads to 'lowered service standards'.

In the *LIU* case, both the courts held that, while an airline has the right to change the aircraft type, it shall not reduce the passengers' 'onboard experience'. If the aircraft type change impacts the passengers' 'onboard experience', the airline may be considered to have established 'lower service standards' and could be held liable for a breach of contract. In other words, even though the aircraft type is not part of the contract of carriage, the 'onboard experience' associated with that aircraft may be considered part of the contract of carriage.

34 See *ZHONG v. China Southern Co., Ltd.*, the Railway Transportation Court of Guangzhou Province, Civil Judgment No. 80 [2021], First, Civil, 7101 (in Chinese).

35 Ibid.

36 See *ZHANG v. Air China Ltd.*, the Third Intermediate People's Court of Beijing Municipality, Civil Judgment No. 15712 [2021], Final, Civil, 03 (in Chinese).

37 See Aviation Think Tank, 'Emergency Evacuation: Are You Ready?—A Study on the Handling of Emergency Evacuation for Large Passenger Aircraft', <http://att.caacnews.com.cn/mhfzcgjyxb/mhfzcgjyxb2th/202110/t20211028_59225.html> accessed 25 Oct. 2024 (in Chinese).

38 See CAACNEWS, 'The FOC System: The "Most Powerful Brain" Safeguarding the Safety of Civil Aviation Operations', <http://caacnews.com.cn/1/tbtj_/202301/t20230111_1361042.html> accessed 25 Oct. 2024 (in Chinese).

39 See Wei Huang, *supra* note 27, at 1227.

However, in *ZHONG v. China Southern Co., Ltd.*, the Railway Transport Court of Guangzhou Province held that the airline was not liable for breach of contract under similar circumstances. In this instance, China Southern Airlines changed a wide-body aircraft to a narrow-body one without informing passengers. The key difference between this case and the *LIU* case is that Liu purchased business class tickets, while Zhong purchased an economy class ticket. The Railway Transport Court of Guangzhou Province, after reviewing the details of the case, held that:

“As a carrier, China Southern Airlines has safely transported Zhong to the destination in accordance with the stipulated time, route, and service standards in the involved contract of carriage, performing all of its contractual obligations. The aircraft type change by China Southern Airlines did not lead to an actual cabin class change, nor did it lower service standards for Zhong. The purpose of Zhong in entering into the contract of carriage by air was effectively fulfilled.”⁴⁰

That is to say, in the *ZHONG* case, the Railway Transport Court of Guangzhou Province held that the airline only has the obligation to transport passengers safely, rather than the obligation to guarantee passengers’ ‘onboard experience’. The aircraft type change – even if it leads to a reduction in passengers’ ‘onboard experience’ – does not constitute ‘lower service standards’. The reason why the courts in the *ZHONG* case and the *LIU* cases made opposing judgments on whether the aircraft type change constitutes a breach of contract is that the courts made different characterizations on whether the aircraft type change constitutes ‘lower service standards’. Whether the aircraft type change constitutes a breach of contract, therefore, mainly depends on whether a court deems that an airline has the obligation to guarantee passengers’ ‘onboard experience’.

This article argues that an airline shall at least guarantee passengers’ ‘onboard experience’ in first class and business class (including some higher-than-economy class cabins such as premium economy class). Today, when air travel is no longer a luxurious experience tailored only for billionaires, an airline is offering a superior ‘onboard experience’ by selling higher prices for the same flight to passengers who purchase more expensive cabin classes. Many airlines’ CoCs also stipulated that passengers in first class and business class enjoy rights distinct from passengers in economy class, thereby confirming that the ‘onboard experience’ constitutes part of the contract of carriage. Additionally, the ‘onboard experience’ of passengers in first class and business class is more conspicuously influenced by aircraft type changes than economy class. Such influence operates not only at the mental level but also potentially at the physical level.

For instance, in the *WANG vs. Beijing Qunar Information Technology Co., Ltd. (2022)*, China Eastern Airlines, without changing Wang’s business class cabin, changed the aircraft from an A330 (a wide-body aircraft) to an A321 (a narrow-body aircraft). According to Wang, there is no significant difference in the seats of the business class and economy class on the A321, while there is a significant difference in the seats of business class on the A321 and the business class on the A330, with a price difference of nearly CNY 3,000 (Approximately EUR 389.92). Wang therefore brought the dispute to the Internet Court of Beijing Municipality, requesting the court to rule that the *Beijing Qunar Information Technology Co., Ltd.* had committed fraud. As Wang did not sue the airline, the court did not make any decision on the airline’s liability. This case, however, demonstrates such a situation that the aircraft type might constitute one of the significant factors for flight ticket prices. Additionally, the aircraft type may also determine whether a passenger is willing to pay for a certain flight or cabin.

Passengers in first class and business class anticipate that airlines will provide corresponding services tailored for them – the higher the cabin class is, the more superior the ‘onboard experience’ provided by the airline will be, and the more expensive the ticket price typically is. Furthermore, there might be significant distinctions between the first class or

⁴⁰ See *ZHONG v. China Southern Co., Ltd.*, supra note 34.

business class of different aircraft types. The aircraft type also affects the ticket prices of first class and business class, even though the prices are influenced by multiple factors and fluctuate considerably. In practice, many airline websites promote the ‘characteristics’ of their aircraft type, such as cabin volume, to attract passengers. On this basis, it shall be held that an airline has the obligation to guarantee the ‘onboard experience’ of first class and business class passengers.

The Issue lies in whether there is an agreement concerning the ‘onboard experience’ between an airline and economy class passengers. This article argues that the impact of aircraft type on economy class passengers is relatively minor, and the agreement concerning the ‘onboard experience’ between an airline and economy class passengers is not explicit. Economy class passengers are generally not entitled to compensation for a lower ‘onboard experience’. Regardless of the passenger’s seat class, however, an airline has the obligation to safely transport passengers. If the aircraft type change causes passengers to be unable to travel or causes an adverse impact on the safety of passengers’ travel, the airline shall bear the liability for breach of contract.

In January 2024, China Southern Airlines, China Eastern Airlines, Sichuan Airlines, and Air China all issued announcements, incorporating “*the situation where passengers are unable to travel due to the aircraft type change*” into the applicable range of free ticket refunds and change.⁴¹ At a seminar held in August 2024, a Chinese judge indicated that it is necessary to distinguish between an airline’s liability for breach of the carriage contract and the liability for breach of the consumer contract.⁴² Some scholars also argue that an airline has the obligation to ensure economic class passengers’ ‘safe arrival’, while it has an additional obligation to protect business class and first class passengers’ ‘onboard experience related to the aircraft type’.⁴³ The aforementioned practices and viewpoints support that an airline is entitled to the change aircraft type, if such change, however, violates any of its obligations under the contract of carriage, the airline shall be liable for breach of contract.

In summary, the aircraft type change itself does not constitute a breach of contract. If the aircraft type change violates an airline’s obligation to guarantee passengers’ ‘onboard experience’ or to safely transport passengers, however, the airline shall not invoke CoCs to exempt from liability for breach of contract.

4. Advice for Passengers and Airlines

4.1. Passengers shall Inform Airlines of Special Personal Circumstances

The aircraft type typically only impacts passengers’ overall ‘onboard experience’. In some special circumstances, however, the aircraft type change may have an adverse impact on passengers traveling safety. For instance, the altered aircraft type may not accommodate the installation of infant safety seats and devices that passengers require. Whether a passenger refuses to board due to safety concerns or an airline refuses to carry a passenger due to safety considerations for other passengers, both situations involve issues of contract breach. Passengers should inform the airline in advance of special personal circumstances to better understand the risks of aircraft type changes, make informed decisions, and encourage the airline to fulfill their reminding obligation and explanation obligation.

4.2. Airlines Shall Faithfully Fulfill Obligation To Remind and Explain

An airline shall fulfill the reminding obligation and explanation obligation regarding CoCs that exempt the airline’s lia-

41 See CAACNEWS, ‘Can compensation be obtained when a flight is subject to delay, cancellation, or temporary change of aircraft type?’, <http://www.caacnews.com.cn/1/2/202406/t20240621_1379244.html> accessed 25 Oct. 2024.

42 This view was presented at the ‘Typical Legal Disputes under Conditions of Carriage’ Seminar on 23 Aug. 2024. For more details see SHIAC, ‘The Seminar on “Typical Legal Disputes under Conditions of Carriage” of the Aviation Law Research Association of Shanghai Law Society was Successfully Held’, <<https://mp.weixin.qq.com/s/ca70tjDUJtTh1O1jGlwUqw>> accessed 31 Oct. 2024 (in Chinese).

43 Ibid.

bilities. When selling tickets, an airline shall present CoCs to passengers and highlight the terms related to one party's material interests by using bold text or other methods that effectively attract passengers' attention. If a passenger has any problem regarding the concepts, contents, or legal implications of the relevant CoCs terms, the airline shall provide a clear explanation, either in writing or verbally. To improve passengers' understanding of CoCs, the airline should request passengers to sign a letter of acknowledgment. Additionally, the airline and its agents should repeatedly remind passengers of the relevant CoCs by using pop-up windows or other methods during the online ticket booking process. The reminding content should be clear, well-placed, and presented in a suitable font size to draw passengers' attention effectively.

4.3. Airlines Shall Improve Compensation Rules Related to the Aircraft Type Change

Faced with the increasing number of contractual disputes in air transportation regarding the 'onboard experience', it is appropriate for an airline to offer compensation to passengers in the context of the aircraft type change. The common compensation approaches that airlines can adopt include cash, vouchers, discounts, extra mile tokens for frequent flyer programmes, etc. An airline should develop a stepped compensation criterion that considers cabin class, the severity of the contract breach, and the extent of the decline in passengers' 'onboard experience', among other factors, to appropriately compensate passengers for losses caused by the aircraft type change. If the aircraft type change has an adverse impact on passengers traveling safety, it is advisable for the airline to provide free ticket refunds and changes to those impacted passengers.

5. Conclusion

Recently, many passengers have brought disputes regarding the aircraft type change to the Chinese courts. In China's judicial practice, CoCs are considered by courts to be part of consumer contracts and carriage contracts, serving as standard terms pre-drafted by an airline. Many airlines retain the right to change the aircraft type in CoCs. Nearly every Chinese airline's CoCs states that the aircraft type does not constitute part of the contracts of carriage. The validity of CoCs determines whether passengers can claim compensation from airlines for the aircraft type change.

China Eastern Airlines Co., Ltd. v. LIU addresses the general legal validity of CoCs, with the validity of exemptions from fraud liability and exemptions from liability for breach of contract. Both the Pudong New District People's Court of Shanghai Municipality and the First Intermediate People's Court of Shanghai Municipality held that the aircraft type change did not constitute fraud. Instead, it constituted 'lower service standards'. As a result, the airline was held liable for breach of contract. Pursuant to the *Civil Aviation Law*, the *Chinese Civil Code*, and the *Consumer Rights and Interests Protection Law*, CoCs that allow airlines to change aircraft types are typically considered valid standard terms. Besides, airlines disclose CoCs through various channels, which may typically eliminate their fraudulent intent and exempt them from liability for fraud. An airline shall not be held liable for the aircraft type change alone. If such changes result in 'lower service standards', the airline, however, shall be liable for breach of contract.

This article argues that an airline shall safeguard the 'onboard experience' for passengers of first class and business class. When the aircraft type change constitutes a lower 'onboard experience' of passengers of first class and business class, the airline constitutes 'lower service standards' and shall not invoke CoCs to exempt the liability for breach of contract. When an airline changes the aircraft type and fails to safely transport passengers, the airline shall compensate passengers of any cabin class. In summary, the aircraft type change per se does not constitute a breach of contract; however, it shall not exempt an airline from other liabilities associated with a breach. Passengers shall inform the airline of any personal special circumstances that may impact safe transportation. Airlines should fulfill their reminding obligation and explanation obligation, and improve their compensation rules for the aircraft type change.

Drawing Borders in the Sky: Operating Licence as Eligibility Criterion for Pandemic State Aid in the Air Transport Sector

Jure Bergant*

1. Introduction

The COVID-19 pandemic significantly impacted all societal domains, with the air transport sector being one of the most affected segments of the internal market of the European Union (the EU). The industry's growth was abruptly halted, and major airlines struggled, prompting EU Member States to provide state aid based on nationality, therefore mainly to the benefit of legacy air carriers. This prompted Ryanair, a new-age low-cost carrier with weaker national affiliations, to challenge the European Commission's (the Commission) approvals of these aids, alleging substantive and procedural errors.

This paper focuses on a key aspect central to cases C-210/21 P¹ and C-209/21 P²: the selectivity criterion of requiring an operating license from a particular Member State to receive aid. The central argument is that an operating license links an air carrier primarily to the EU and only secondarily, administratively to the issuing Member State. It therefore challenges the reasoning of the European Court of Justice (the Court), which upheld the Commission's approvals of these nationally selective aid schemes. The paper questions the Court's undifferentiated assessment of the legal bases and the proportionality principle.

The paper is structured as follows: an overview of pandemic state aid in the air transport sector and Ryanair's litigation campaign (section 2), justification arguments for the operating license as a selective eligibility criterion in the mentioned cases (section 3), and a critical analysis of these arguments (section 4).

2. Pandemic State Aid in the Air Transport Sector

The voluntary social distancing and restrictive measures by Member States during the COVID-19 pandemic brought the European air transport sector to a halt. The drop in passenger numbers led to widespread downsizing³ and an urgent need for financial support. Air carriers struggled to secure market-based funding,⁴ prompting Member States to intervene and provide financial aid.⁵ Accordingly, the Commission immediately vowed *"to enable Member States to use the full flexibility foreseen under State aid rules to support the economy in the context of the COVID-19 outbreak"*⁶ by adopting the Temporary Framework for State aid measures to support the economy in the current COVID-19 outbreak (Temporary Framework)⁷ on 19 March 2020. In addition to providing clarity on how the Commission intended to exer-

* LL.M Graduate Trinity College Dublin, Junior Legal Counsel at Ryanair. Views expressed are purely those of the author and reflect facts and circumstances as available in December 2024.

1 Case C-210/21 P Ryanair v Commission [2023] ECLI:EU:C:2023:908.

2 Case C-209/21 P Ryanair v Commission [2023] ECLI:EU:C:2023:905.

3 Layoffs in the air transport sector accounted for almost a quarter of all pandemic related layoffs in the EU. See more in Dubravka Aksamovic and Lidija Simunovic, 'The EU scheme for the state aid rules in the air transport sector during the Covid-19 crisis' (2022) 12 Juridical Trib 51, 53; Krisztina Széles, 'New Challenges Of EU State Aid Law: The Impact Of The Pandemic On Competition Between Member States' (2022) 88 Culletul Juridic 49, 57.

4 Petar Petrov, 'State Aid and COVID-19: With a Particular Focus on the Air Transport Sector' (2021) 20 Eur St Aid LQ 461, 469.

5 José Luis Buendía and Angela Dovalo, 'State Aid Versus COVID-19: The Commission Adopts a Temporary Framework' (2020) 19 Eur St Aid LQ 3, 3.

6 State aid: Commission adopts Temporary Framework to enable Member States to further support the economy in the COVID-19 outbreak' (European Commission Press Corner, 19 March 2020) <https://ec.europa.eu/commission/presscorner/detail/en/IP_20_496> accessed 5 July 2024.

7 Communication from the Commission - Temporary Framework for State aid measures to support the economy in the current COVID-19 outbreak [2020] OJ C 91I with subsequent amendments.

cise its discretionary powers, the Temporary Framework importantly allowed for a relaxation of procedural rules in the context of the pandemic.⁸

The air transport sector became the largest beneficiary of this state aid,⁹ with Commission approvals being issued in record times, sometimes within 48 hours.¹⁰ However, the eligibility criteria for these aids, particularly the requirement for an operating licence from the granting Member State, sparked controversy. Most aid schemes individually favoured national flag carriers, other schemes established a national selectivity criterion by limiting aid to holders of an operating licence under the provisions of Regulation 1008/2008¹¹ of the particular Member State granting the aid, the eligibility criterion in focus in this paper.

This brought the risk of wealthier, 'deep-pocket' Member States potentially outspending less wealthy ones, leading to an unbalanced internal market and reversing liberalization efforts.¹² In the worst case scenario this could result in the reemergence of monopolistic market structures spearheaded by national flag carriers,¹³ rather than allowing market forces to eliminate inefficient firms.¹⁴

2.1. Ryanair's litigation campaign

In the wake of the Commission's lenient approach to approving pandemic state aid schemes Ryanair launched an extensive litigation campaign at the Court of Justice of the European Union (CJEU) seeking to annul the individual decisions of the Commission that authorized financial aid to its competitors during the pandemic, which by its own accounts cumulatively amounted to more than 40 billion EUR.¹⁵ If successful, this would ultimately mean that the granting Member States would have the obligation to claw back the illegal aid from the beneficiaries.

At the time of writing Ryanair had launched 28 annulment actions¹⁶ under Article 263 TFEU¹⁷ at the General Court (GC). The GC has decided in 24 cases, most pending an appeal decision of the Court of Justice (ECJ). The ECJ has thus far issued 6 appeal judgements, all of them confirming the decisions of the GC and the Commission. Ryanair has thus far only been successful with annulment in 7 cases at the first instance (marked with an asterisk), 5 cases are still pending an appeal decision. The cases marked red signify challenges to aid schemes that included the eligibility criterium of holding an operating licence of a specific Member State.

8 Buendía and Dovalo (n 5) 3; Kevin Kasser and Maria Claudia Solarte-Vasquez, 'Neutrality and Equality Aspects in the EU State Aid Temporary Framework 2020: The Case of the Airline Industry' (2022) 12 *TaTech Journal of European Studies* 99, 108; Széles (n 3) 51.

9 Kasser and Solarte-Vasquez (n 8) 100.

10 Carole Maczkovics, 'How flexible should State aid control be in times of crisis?' (2020) 19 *Eur St Aid LQ* 271, 279.

11 Regulation (EC) No 1008/2008 of the European Parliament and of the Council of 24 September 2008 on common rules for the operation of air services in the Community [2008] OJ L293/3.

12 Buendía and Dovalo (n 5) 7; Maczkovics (n 10) 271 and 282; Alessandro Rosanò, 'Adapting to change: COVID-19 as a factor shaping EU State aid law' (2020) 5 *European Papers* 621, 630; Széles (n 3) 55-58.

13 Petrov (n 4) 478.

14 Maczkovics (n 10) 275 and 283; Rosanò (n 13) 631.

15 'RYANAIR WELCOMES EU COURT RULING ON AIR FRANCE-KLM STATE AID' (Ryanair Corporate, 7 February 2024) <<https://corporate.ryanair.com/news/ryanair-welcomes-eu-court-ruling-on-air-france-klm-state-aid/>> accessed 5 July 2024.

16 Further 5 cases (T-185/22, T-164/22, T-499/21, T-444/21 and T-340/21) were launched but later discontinued on 14 December 2023.

17 Consolidated version of the Treaty on the Functioning of the European Union [2012] OJ C326/47.

Table: Ryanair's litigation campaign

GC	Date of GC Judgement	ECJ	Date of ECJ Appeal Judgement	Legal basis
T-259/20	17 February 2021	C-210/21 P	23 November 2023	107(2)(b) TFEU
T-238/20	17 February 2021	C-209/21 P	23 November 2023	107(3)(b) TFEU
T-378/20	14 April 2021	C-321/21 P	28 September 2023	107(2)(b) TFEU
T-379/20	14 April 2021	C-320/21 P	28 September 2023	107(2)(b) TFEU
T-388/20	14 April 2021	C-353/21 P	30 May 2024	107(3)(b) TFEU
T-643/20	19 May 2021	No appeal	x	107(3)(b) TFEU
T-465/20	19 May 2021	No appeal	x	107(3)(c) TFEU
T-628/20	19 May 2021	C-441/21 P	6 June 2024	107(3)(b) TFEU
T-665/20	9 June 2021	No appeal	x	107(2)(b) TFEU
T-677/20	14 July 2021	C-591/21 P	29 July 2024	107(2)(b) TFEU
T-657/20	22 June 2022	C-588/22 P	7 November 2024	107(3)(b) TFEU
T-111/21	9 November 2022	No appeal	x	107(2)(b) TFEU
T-238/21(*)	10 May 2023	No appeal	x	107(3)(b) TFEU
T-34/21(*) (joined cases T-87/21)	10 May 2023	C-457/23 P	<i>Pending</i>	107(3)(b) TFEU
T-268/21(*)	24 May 2023	C-490/23 P	<i>Pending</i>	107(2)(b) TFEU
T-333/21	18 October 2023	No appeal	x	107(2)(b) TFEU
T-225/21	18 October 2023	No appeal	x	107(2)(b) TFEU
T-14/21	18 October 2023	No appeal	x	107(3)(b) TFEU
T-769/20	18 October 2023	No appeal	x	107(3)(b) TFEU
T-737/20	18 October 2023	No appeal	x	107(3)(b) TFEU
T-216/21(*)	20 December 2023	C-166/24 P C-192/24 P	<i>Pending</i> <i>Pending</i>	107(3)(b) TFEU
T-494/21(*)	20 December 2023	C-167/24 P C-193/24 P	<i>Pending</i> <i>Pending</i>	107(3)(b) TFEU
T-146/22(*)	7 February 2024	C-266/24 P C-269/24 P C-289/24 P	<i>Pending</i> <i>Pending</i> <i>Pending</i>	107(3)(b) TFEU
T-458/22	<i>Pending</i>	x	x	107(3)(c) TFEU
T-366/22	<i>Pending</i>	x	x	107(2)(b) TFEU
T-28/22(*)	8 May 2024	x	x	107(3)(c) TFEU
T-743/21	<i>Pending</i>	x	x	107(3)(c) TFEU
T-398/21	<i>Pending</i>	x	x	107(3)(b) TFEU

2.2. Compatibility of Pandemic State Aid with the Internal Market

Article 107(1) TFEU generally prohibits Member States from adopting measures that would: (A) constitute an intervention by the State or through State resources; (B) be liable to affect trade between Member States; (C) confer a selective advantage on the recipient; (D) distort or threaten to distort competition.¹⁸ Provided these conditions are met the measure constitutes state aid and is consequently incompatible with the internal market. This prohibition is however not absolute, as measures that fall within one of the provisions of Article 107(2) or 107(3) TFEU can be declared compatible with the internal market, despite potentially producing adverse effects generally addressed by the prohibition in Article 107(1) TFEU.¹⁹

A notified aid measure can be declared compatible with the internal market pursuant to one of the derogation clauses of Article 107(2) or 107(3) TFEU provided that its objective falls in line with one of the set out ‘compatible’ objectives and furthermore adheres to the principle of proportionality. This means that the proposed aid measure needs to be appropriate and necessary to attain the objective set out in a specific derogation and do so in a proportionate manner.²⁰ Three specific provisions were interchangeably used to justify the compatibility of aid measures related to the damages air carriers suffered as a consequence of the COVID-19 pandemic: Articles 107(2)(b), 107(3)(b) and 107(3)(c) TFEU.

The derogation in Article 107(2)(b) TFEU, “*aid to make good the damage caused by natural disasters or exceptional occurrences*”, is a compulsory derogation, which means the Commission has limited discretion when assessing the compatibility of the measures. If an event is (A) unforeseeable or difficult to foresee, (B) has a significant scale or economic impact and (C) the aid measure is extraordinary to make good the damage caused by such event²¹ such an aid measure is declared to be ‘exempted aid’ and consequently compatible with the internal market.

Article 107(3)(b) TFEU, allowing for “*aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State*”, is a facultative derogation, meaning the Commission exercises a wider level of discretion.²² To provide guidance on how the Commission exercises its discretion to declare a measure ‘authorized aid’, the Commission issued the previously mentioned Temporary Framework.

The third justification used was the derogation clause in Article 107(3)(c) TFEU, allowing for “*aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest*”. This also is a facultative derogation and the basis for another set of Commission Guidelines.²³

3. Operating Licence as an Eligibility Criterion

The following section will examine two ECJ cases that dealt with challenges to aid schemes which relied on the criterion of holding an operating licence issued by the respective Member State as a means to select eligible beneficiaries.²⁴

¹⁸ Case C-209/21 P (n 2) para 27.

¹⁹ Ibid para 30.

²⁰ Case C-209/21 P (n 2) para 31; Case C-210/21 P (n 1) para 36.

²¹ Maczkovics (n 10) 273-275; Rosanò (n 13) 628; Petrov (n 4) 463.

²² Aksamovic and Simunovic (n 3) 57.

²³ Communication from the Commission — Guidelines on State aid for rescuing and restructuring non-financial undertakings in difficulty [2014] OJ C249/1. Aid could however not be granted to undertakings that experienced financial difficulties not caused by the pandemic. See more in Maczkovics (n 10) 276-277; Rosanò (n 13) 627; Aksamovic and Simunovic (n 3) 58-63; Széles (n 3) 52.

²⁴ One further scheme made use of the operating licence eligibility criterium. Ryanair was successful in its challenge and the Commission was found to have breached its duty to state reasons, the GC however did not decide on the substantive pleas including the selective eligibility criterion. An appeal has been filed against the decision, the case C-490/23 P is nonetheless still pending and will therefore not be the subject of analysis in this paper. See more in Case T-268/21 Ryanair v Commission [2023] ECLI:EU:T:2023:279, paras 2-5.

3.1. C-210/21 P

The French aid scheme allowed for the deferral of payment of the civil aviation and solidarity taxes paid by air carriers operating flights from French airports. This financial relief measure was however limited only to air carriers holding a French operating licence. The objective of the scheme was to ensure that French licenced air carriers would maintain sufficient liquidity until restrictions and prohibitions linked to the COVID-19 pandemic would be lifted and normal connectivity resumed. This would in turn contribute to the preservation of the aviation sector holding a French operating licence.²⁵ The Commission and the GC decided that such a scheme is in line with the derogation in Article 107(2)(b) TFEU as aid to make good the damage caused by an exceptional occurrence and consequently compatible with the internal market.

Focusing on the argumentation of the ECJ concerning the justification of the French operating licence as an eligibility criterion, the ECJ rejected Ryanair's arguments that the Commission and the GC misinterpreted the link formed by the operating licence between the licence holders and the issuing Member State as established by Regulation 1008/2008 and that the aid measure was therefore not in accordance with the proportionality principle in relation to the objective pursued in Article 107(2)(b) TFEU. Ryanair pleaded that the link established by the operating licence does not grant the issuing authority any increased monitoring or control powers in relation to the granted aid, or guarantee that in this case French licence holders were more severely affected by French travel restrictions than licence holders of other Member States, nor does it mean that non-French licence holders could more easily interrupt routes to and from France.²⁶ The ECJ contrastingly affirmed the reasoning of the GC, that by limiting the benefits to French licence holders France had legitimately sought that there is a permanent link between it and the beneficiaries. It therefore perceived the operating licence as a stable link between the air carrier and the issuing Member State, even though the financial checks do not specifically relate to the aid granted.²⁷ The ECJ also concluded that, in light of the fact that Member State resources are limited they may legitimately be selectively allocated only to air carriers that were most severely affected by travel restrictions and lockdown measures of that Member State. The ECJ agreed the GC therefore correctly relied on the data of the Commission, which showed that Ryanair was only affected in 8.3% of its business, while some beneficiaries were 100% affected.²⁸

3.2. C-209/21 P

Sweden introduced a loan guarantee scheme limited to air carriers that held a Swedish operating licence. The goal of the aid measure was to provide sufficient liquidity to beneficiaries who would likely play a major role in Sweden's connectivity and ensure their viability and continuity of economic activity despite disruptions caused by the pandemic.²⁹ The scheme was found by the Commission and the GC to be in line with the derogation in Article 107(3)(b) TFEU as aid to remedy a serious disturbance in the economy of a Member State, and thus compatible with the internal market.

The argumentation of the ECJ was similar to the previous case concerning the French aid scheme. The ECJ sided with the Commission and the GC by maintaining that the Swedish operating licence guarantees that the air carrier has its principal place of business in Sweden which therefore creates a permanent link between the benefitting air carrier and Sweden, the licence issuer. Swedish licence holders contribute the most to the Swedish economy, therefore such a scheme is appropriate, necessary and proportionate to achieve the set objective of remedying a serious disturbance in the Swedish

²⁵ Case C-210/21 P (n 1) paras 4-8.

²⁶ Ibid paras 18-29.

²⁷ Ibid paras 52-56.

²⁸ Ibid paras 60-59.

²⁹ Case C-209/21 P (n 2) paras 3-5.

economy caused by the COVID-19 pandemic by ensuring Sweden's connectivity.³⁰ The ECJ dismissed Ryanair's arguments that called into question the strength of the link between the licence holders and the issuing Member State, especially the proximity of the specific air carriers to the economy of the issuing Member State and the causal link between having a Swedish licence and guaranteeing service on Swedish territory, a link Ryanair pleaded was entirely hypothetical and contradicted by data.³¹ Ryanair to this end focused on the fact that Swedish licence holders only accounted for the minority of Sweden's regular air services in certain sectors.³²

3.3. Opinion of the Advocate General

Advocate General Pitruzzella also sided with the conclusions of the Commission and the GC, albeit with a more insightful argumentation.³³ He initially clarified that while state aid rules generally aim to keep discrimination in check, they themselves do not contain any hard rule of non-discrimination.³⁴ Drawing on jurisprudence in *International Jet Management*³⁵, the aid scheme has to be justified on the basis of objective considerations, independent of the nationality of the persons concerned.³⁶ The Swedish aid scheme employed an eligibility criterion that has the same effect as a discriminatory criterion based on nationality.³⁷ However, "*depending on the nature of the measure at issue and the objective pursued by it, the requirement of a link with the national territory for the purposes of eligibility for the aid may be both necessary and proportionate, so that even a distinguishing criterion (...) based, in essence, on the company's seat, may, depending on the circumstances, be justified and non-discriminatory.*"³⁸ Such a selection criterion may therefore be used if it is geared towards pursuing the set-out objective and constitutes the means to achieve it according to the principle of proportionality.³⁹ In addition, the objective of preserving Sweden's connectivity could furthermore constitute an objective consideration, independent of nationality in the sense of *International Jet Management*.⁴⁰

For the Advocate General the reciprocal regulatory obligations embodied in the operating licence pursuant to Regulation 1008/2008 create a 'link with the national territory' that would be difficult to impose on air carriers contractually.⁴¹ While the operating licence does not impose any obligation on air carriers to provide certain services to or from the issuing Member State, or make it harder for those air carriers to interrupt such services, the link it establishes makes instances where an air carrier would establish its principal place of business somewhere where it had no intentions to operate, or would eventually cease all of its activities, highly unlikely.⁴² This was factually the true in the present case, since all Swedish licence holders provided services to and from Sweden and Ryanair, while carrying the majority of its passengers outside of Ireland, regularly recognizes its contribution to the Irish economy over the past 35 years.⁴³

The Advocate General agreed that Ryanair was right to challenge the GC's statement that the Commission is not required to abstractly consider other possible alternative measures, as this is the essence of proportionality.⁴⁴ In his view the aid measure and its selective criterion however did not go beyond the proportionality principle *vis-à-vis* the pursued objective of remedying a serious disturbance in the Swedish economy.⁴⁵

30 Ibid paras 40-57.

31 Ibid paras 18-20.

32 Ibid para 21.

33 Contrary to both Courts the Advocate General maintained that the Commission is required to weigh the beneficial effects of aid against the adverse effects on trading conditions and the maintenance of undistorted competition to ensure that aid measures are in accordance with the common European interest. See more in Case C-209/21 P *Ryanair v Commission* [2023] ECLI:EU:C:2023:905, Opinion of AG Pitruzzella, paras 88-95.

34 Ibid para 15.

35 Case C-628/11 *International Jet Management* [2014] OJ C142/2.

36 Opinion of AG Pitruzzella (n 34) para 12.

37 Ibid para 22.

38 Ibid para 23.

39 Ibid para 29.

40 Ibid para 25.

41 Ibid paras 32 and 39.

42 Ibid paras 39-42 and 48.

43 Ibid para 42.

44 Ibid para 64.

45 Ibid para 67.

4. Analysis

Summing up the arguments used to justify the operating licence of a particular Member State as an eligibility criterion to benefit from COVID-19 related state aid, the ECJ and the Advocate General relied on the permanent and stable link the operating licence establishes between the air carrier and the issuing Member State. In addition to the reciprocal regulatory obligations, the operating licence necessarily means the air carrier's principal place of business is established on the territory of the issuing Member State, which therefore creates a territorial link. This makes a strong connection between the air carrier and that Member State's economy likelier while possibly also exposing the air carrier more to that Member State's particular restrictive measures related to the pandemic.

The following section will demonstrate three arguments that oppose the view that the operating licence creates a strong national territorial link.

4.1. Nature of the Link – Opposing View

First, to assess the nature and the strength of the link, the provisions of Regulation 1008/2008 have to be analysed. Article 2(11) Regulation 1008/2008 introduces the concept of 'Community air carrier' (also 'EU air carrier') which refers to an air carrier with a valid operating licence granted by a competent licencing authority, the designated authority of a Member State. This concept is indicative of the overarching spirit of the regulation, which strives for the homogenous application of EU legislation relating to the internal aviation market.⁴⁶ This goal of homogeneity is clearly visible in Articles 3 to 14 Regulation 1008/2008, which leave little to no room for discretion of Member State licencing authorities, who are thus only required to uniformly apply the said provisions. Considering the concept of the Community air carrier and the requirement of uniform application of relevant rules by Member State authorities we can therefore conclude that Regulation 1008/2008 aims to, in effect, establish a link between the Community air carrier and the Community (the EU) by mobilizing established Member State administrative mechanisms, effectively outsourcing the administrative load via de-concentration. This supranational link between air carriers and the EU is furthermore reflected in Article 4(1) (f) Regulation 1008/2008, which establishes as one of the operating licence requirements the majority ownership and effective control of the undertaking by EU Member States and/or nationals of EU Member States, as opposed to the specific Member State and/or its nationals. This goes to show that the relevant distinction in Regulation 1008/2008 is between EU and non-EU rather intra-EU. Therefore, from the intra-EU perspective, the primary link the operating licence establishes is one between the Community air carrier and the EU, with the secondary link between the Community air carrier and the specific Member State limited to a predominantly administrative nature.

Second, the internal aviation market has undergone significant transformation since the start of the liberalization process in the 1990s, which has generated new and dynamic competitive conditions. Incumbents were faced with and to some extent beaten by more efficient entrants adopting to the low-cost carrier business model.⁴⁷ Traditional flag carriers had to adapt as the passenger transportation market transformed into a rapidly growing commodity market.⁴⁸ This meant that many legacy carriers de-nationalized and moved away from traditional corporate structures that gave dominant power to their Member States of origin.⁴⁹ Free to exercise the cabotage freedom,⁵⁰ Community air carriers were encouraged to make use of it and pursue profitable business strategies to beat their competitors. While it seems plausible to maintain that licence holders are unlikely to decide not to operate in the territory of their principal place of business, it has become significantly more likely that air carriers, especially new-age carriers like Ryanair, will meet their

⁴⁶ See for example Recital 18 of Regulation 1008/2008.

⁴⁷ Fabio Domanico, 'The European airline industry: law and economics of low cost carriers' (2007) 23 *European Journal of Law and Economics* 199, 206.

⁴⁸ *Ibid* 214.

⁴⁹ Pablo Mendes de Leon, 'Establishment of air transport undertakings—Towards a more holistic approach' (2009) 15 *Journal of Air Transport Management* 96, 100-101.

⁵⁰ Domanico (n 48) 201.

operation decisions like any other private company on a competitive market, maximizing shareholder value rather than catering to public objectives based on historic territorial affiliations.

Third, the EU has increasingly shown the willingness and the ability to impose its significance on the internal aviation market, displacing Member State power. This is evident in Recital 18 of Regulation 1008/2008: *“Since the objective of (...) homogeneous application of Community legislation with regard to the internal aviation market cannot be sufficiently achieved by the Member States because of the international character of air transport, and can therefore be better achieved at Community level, the Community may adopt measures, in accordance with the principle of subsidiarity (...).”*⁵¹

One such example is EU’s expansion into external aviation policy since the so called ‘Open Skies’ judgements in 2002.⁵² Since the specifics of this are beyond the scope of this paper it suffice to say that the EU is having an increasingly central role in the internal aviation market it created and has therefore been replacing the formerly strong territorial link between Member States and national flag carriers with the concept of Community air carriers.

4.2. Critical Assessment of the Analysed Decisions

With this opposing view on the nature and strength of the link an operating licence creates between the licence holding air carrier and the issuing Member State, we can turn to the decisions presented above and critically assess their persuasiveness.

Accordingly, the first takeaway is that the ECJ did not differentiate the assessment of the compatibility of the operating licence eligibility criterium, and the overall measure based on the differing legal basis on which the respective aid measures were approved by the Commission. Assessing the proportionality of the aid measure with such an eligibility criterium should logically be different depending on whether the measure claims to pursue the objective of remedying the damage caused by an exceptional occurrence or remedying a serious disturbance in the economy of a Member State. Showing that aid granted to the selected beneficiaries is appropriate, necessary and proportionate to remedy a disturbance of a national economy should require more evidence that the selected beneficiaries are more closely linked with the economy than showing that the aid granted was appropriate, necessary and proportionate to remedy (some of) the pandemic damage sustained by selected air carriers.

The second takeaway is that while the approved measures are appropriate to achieve the objectives that fall in line with the respective derogation clauses in Article 107 TFEU, their necessity and proportionality are more questionable. The ECJ could have examined other potential measures with alternative eligibility criteria, like for example market shares or routes serviced, to determine which alternative would have been the most effective in satisfying the objective, while keeping the level of distortion of competition to a minimum. While the exact assessment of the proportionality of both analysed schemes is beyond the scope of this paper, Ryanair has presented persuasive arguments that point towards the possibility of other proportionate alternative schemes that forego the operating licence-based eligibility criterium of the two analysed aid schemes.

5. Conclusion

There are many different aspects of pandemic state aid in the air transport sector that deserve critical attention. While some shortcomings, especially on part of the Commission, might be understandable given the crisis circumstances and short timeframe for decision-making, Ryanair’s comprehensive litigation campaign undoubtedly raises many valid points for judicial consideration. A prudent and measured approach of the Courts, balancing the interests of the Member States and the interest of a functioning internal market, is not only necessary from the ex post, but furthermore from

⁵¹ Recital 18 of Regulation 1008/2008.

⁵² See more in *Communication From The Commission - Developing the agenda for the Community’s external aviation policy* (COM(2005) 79) [2005] <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52005DC0079>> accessed 6 July 2024.

the ex ante perspective *vis-à-vis* potential future crises. The courts have thus far left little room for the application of the principle of non-discrimination on grounds of nationality by endorsing selective eligibility criteria based on operating licences.⁵³

This paper attempted to show that there are indeed valid arguments that speak against aid measures delimiting beneficiaries based on such eligibility criteria, by relying on the provisions and the spirit of Regulation 1008/2008, the contemporary market dynamics on the liberalized and competitive internal aviation market and the general trends of an ever-tighter EU integration. These arguments can be applied to the two relevant cases analysed in this paper, C-210/21 P and C-209/21 P, to show that the ECJ firstly failed to consider the subtleties of different derogation clauses in Articles 107(2)(b) and 107(3)(b) TFEU respectively, and secondly that the nature of the link the operating licence creates between the air carrier and the issuing Member State might not be enough to make this selectivity criterion necessary and proportionate to attain the set-out objective of the aid measure.

Considering the amounts of aid pumped into the air transport sector in the COVID-19 context market distortions are inevitable. While the real extent of these repercussions will probably never be known, the jurisprudence of the CJEU might result in ‘deep-pocket’ Member States with nationalist and protectionist motives feeling less restricted to make use of state aid mechanisms to the potential detriment of the EU internal market. It remains to be seen whether this will be limited to the air transport sector, or spill over and cause the fragmentation of other markets, especially in the context of potential future crises.⁵⁴

53 François-Charles Lapr v te and others, ‘Any Room Left For Non-Discrimination On Grounds Of Nationality And The ‘Balancing Test’ In Crisis Aid? Ryanair v. Commission (Swedish And French Schemes; COVID-19)’ (Cleary Antitrust Watch, 23 November 2023) <<https://www.clearyantitrustwatch.com/2023/11/any-room-left-for-non-discrimination-on-grounds-of-nationality-and-the-balancing-test-in-crisis-aid-ryanair-v-commission-swedish-and-french-schemes-covid-19/>> accessed on 6 July 2024.

54 Ibid.

The Paperless Paradigm: Balancing Privacy, Security, Efficiency, and Convenience in Air Travel in the Digital Transformation Age*

Monika Markiewicz**

Abstract

This article considers the use of facial recognition technology (FRT) and biometric data processing for the purpose of paperless air travel. Recent developments in artificial intelligence (AI) technology once again brought the attention to the various risks associated with its usage. On one side, the use of such technology offers efficiency, increased security, and convenience. On the other, it relies on the processing of sensitive personal data, a factor which requires stringent safeguards to ensure the protection of data and individuals' rights. While approaches towards privacy and data protection laws differ around the world, many Member States have already made significant progress in implementing biometric verification as part of their airport journey. The continuing increase in demand for travel necessitates international co-operation to ensure effective and secure passenger facilitation. The ICAO's TRIP strategy is integral in achieving this aim. This article explores the concept of seamless air travel reliant on biometrics and FRT, while analysing three examples from different jurisdictions. It evaluates the legal and regulatory frameworks in respect of privacy and data protection which apply to the use of biometrics and FRT. All of this is considered within the overarching framework of the ICAO TRIP strategy.

1. Introduction

AI has been around for over half a century and although the FLY AI Report by EUROCONTROL¹ states that the aviation industry has been slower in adopting technological and digital innovation, one could argue that the use of AI has been making significant strides in aviation in many different areas. One such area is the digitalisation of travel documents for the purpose of seamless travel experience and efficient passenger facilitation. States, airports, and airlines have been trialling and implementing paperless travel with different results. Boarding passes on mobile applications are now a common place, and the launch of machine-readable travel documents (MRTDs)² and their electronic version (eMRTDs, or ePassports), increased both security and efficiency in getting through the airport. The eGates enable travellers to self-serve their identity verification process allowing multiple passengers to verify their identity simultaneously, reducing wait times and impact on airports' resources. As passenger volumes continue to increase³ and technological developments are gaining momentum, all eyes are turning to AI for solutions.

There is no global consensus currently on regulating AI. While emergence of generative AI triggered competition among governments and policy makers to put forward rules in a bid to lead the way, the EU has now set the precedent⁴ with its EU AI Act.⁵ The approach with the Act bears some resemblance in the way robust data protection laws have been imple-

* This paper received the European Air Law Association (EALA) essay prize (2nd) for 2024.

** Head of Privacy and Data Protection at Shoosmiths LLP and student at Leiden University.

The opinions expressed in this article are purely the views of the author and thus may not in any circumstances be regarded as an official position of the institutions with which the author is associated.

1 EUROCONTROL, 'The FLY AI Report. Demystifying and Accelerating AI in Aviation/ATM', (5 March 2020) <https://www.eurocontrol.int/publication/fly-ai-report> last accessed 21 December 2024, pg. 4.

2 ICAO, 'Doc 9303 Machine Readable Travel Documents' (2021) <https://www.icao.int/publications/pages/publication.aspx?docnum=9303> last accessed 21 December 2024.

3 With the exception of the times affected by the pandemic, the volume of travellers keeps increasing, and it is anticipated that it will surpass the pre-pandemic levels in 2024. See: Felix Richter, 'Tourism Recovery After Covid-19. International Tourism Approaches Pre-Pandemic Levels' (Statista, 18 December 2023) <https://www.statista.com/chart/21793/international-tourist-arrivals-worldwide/>; see also UNWTO, 'World Tourism Barometer and Statistical Annex' (eLibrary, January 2023) <https://www.e-unwto.org/doi/abs/10.18111/wtobarometereng.2023.21.1.1> last accessed 21 December 2024.

4 European Parliament, 'EU AI Act: first regulation on artificial intelligence' (19 December 2023) <https://www.europarl.europa.eu/topics/en/article/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence> last accessed 21 December 2024.

5 Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence

mented, with the EU leading the way. While the establishment of laws governing personal data goes back to 1970s, it was the General Data Protection Regulation (GDPR)⁶ that rattled organisations around the world with its extraterritorial scope and significant fines⁷ for non-compliance. In a similar fashion, the EU is pioneering with its EU AI Act.

The use of AI in aviation has been making significant headway. As part of the International Civil Aviation Organisation's (ICAO) Traveller Identification Programme (TRIP) strategy, security and facilitation of passengers plays a key role. Efficient traveller identification management heavily relies on AI technology such as facial recognition (FRT) or other biometric checks like fingerprint or iris scan. Biometrics are largely considered one of the most reliable ways of identification, but they are also considered very sensitive, as in most cases, they are inherently unchangeable. For this reason, data protection laws, such as GDPR, set higher degree of safeguards for the processing of biometric data when used for identification purposes.

In chapter 2, this article conceptualises the legal and regulatory landscape which influences achieving an objective of seamless travel experience and efficient passenger facilitation. In chapter 3, based on three examples, it analyses how the existence or lack of data protection laws and jurisdictional guidance impact the use of biometrics and FRT and how regulatory developments in AI may impact the way FRT is used at airports. The discussion in chapter 4 highlights ramifications of disjointed approach towards treatment of biometric data, and its impact on success of seamless travel experience and efficient passenger facilitation.

This article argues that while technology enhances travel efficiency, legislative requirements exist which require a balanced approach between privacy, security, efficiency, and convenience in air travel. This article suggests that ICAO should consider developing guidelines specifically addressing treatment of biometric data and use of FRT for the purposes of passenger facilitation in aviation (akin to the guidance provided for e.g. PNR), to ensure best practice and support for international cooperation.

2. Convergence of TRIP, Data Protection, and FRT

Among the strategic objectives of the ICAO is aviation security and passenger facilitation.⁸ This dual objective focuses on ensuring that only legitimate travellers are able to cross borders—reducing threats like terrorism or human trafficking, while improving travel experience for passengers—making it seamless and less time-consuming. However, in order for these objectives to be fulfilled, certain elements require alignment. Figure 1 outlines the core aspects that together contribute to the achievement of ICAO's objective. Specifically, it shows the convergence between the TRIP strategy, the role of FRT, and the importance of privacy and data protection, all of which play a key role in achieving the objective of seamless travel experience and efficient passenger facilitation. This section will delve into each of the elements and their intersections.

and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act) (Text with EEA relevance), OJ L 2024/1689

⁶ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (Text with EEA relevance), OJ L119/1

⁷ Ibid, Art. 83

⁸ ICAO, 'Strategic Objectives' <https://www.icao.int/about-icao/Council/Pages/Strategic-Objectives.aspx> last accessed 21 December 2024

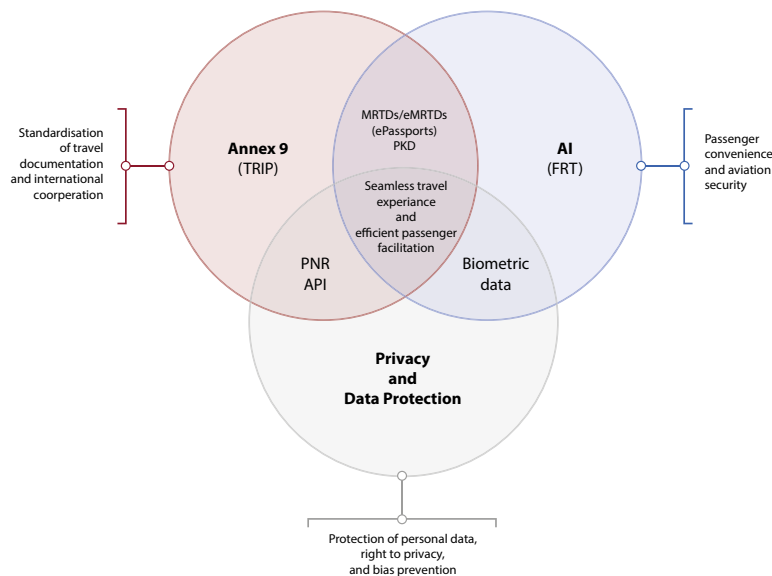


Figure 1. Convergence of TRIP, Data Protection, and FRT for the purpose of seamless travel experience and efficient passenger facilitation

2.1. Travel Identification Programme (TRIP)

As part of meeting its strategic objectives, the ICAO established TRIP which aims to ensure a wellcoordinated approach to managing the interdependent elements of traveller identification. TRIP consists of five key elements: evidence of identity, MRTDs, document issuance and control, inspection systems and tools, and interoperable applications.⁹ With the development of passports containing an electronic chip with biometric information (eMRTDs, or ePassports), ICAO encourages States to join the ICAO Public Key Directory (PKD). PKD is a central repository that enables the sharing of a public key which authenticates digital signatures confirming the chip has not been tampered with.¹⁰ In conjunction with the biometric data stored on the chip, ePassports offer robust and secure way to validate the travel document and verify the identity of the passenger.

The TRIP strategy was adopted by the Member States in 2013 and complements the implementation of one of the ICAO's standards and recommended practices (SARPs), specifically Annex 9 (Facilitation) to the Chicago Convention¹¹. Annex 9 ensures that border control and security check procedures are robust and efficient. In doing so it, inter alia, encourages Member States to engage in international cooperation in collection and sharing of Advance Passenger Information (API)¹² and Passenger Name Record (PNR)¹³ data, as well as sets standards for, and encourages the use of MRTDs.¹⁴ Abeyratne pointed out that exchanges of API data in particular are important for the prevention of terrorism.¹⁵ Moreover, Chapter 9 (Passenger Data Exchange Systems) of the Annex specifically focuses on enhancing and streamlining the processes in relation to collection, transmission, and handling of passenger data. These guidelines recognise that information about passengers constitutes personal data and requires stakeholders to process it in accordance with the relevant privacy and data protection laws.

9 ICAO, 'Traveller Identification Programme. ID Management Solutions for More Secure Travel Documents' <https://www.icao.int/Security/FAL/TRIP/Pages/default.aspx> last accessed 21 December 2024

10 ICAO, 'ICAO PKD' <https://www.icao.int/Security/FAL/PKD/Pages/default.aspx> last accessed 21 December 2024

11 Convention on International Civil Aviation 1944, Annex 9—Facilitation

12 ICAO, 'Guidelines on Advance Passenger Information (API)' (June 2022) <https://www.icao.int/Security/FAL/Documents/API%20Guidelines.EN.June2022.pdf> last accessed 21 December 2024

13 ICAO, 'Doc 9944 Guidelines on Passenger Name Record (PNR) Data' (2010) https://www.icao.int/Security/FAL/ANNEX9/Documents/9944_cons_en.pdf last accessed 21 December 2024

14 Supra note 2

15 Ruwantissa Abeyratne, 'Traveller Identity' (2019) Legal Priorities in Air Transport pg. 251

2.2. Privacy and Data Protection

To the extent that aviation's operational processes concern individuals and their data, privacy and data protection rules will apply in jurisdictions where Member States have implemented them or where extraterritorial laws apply. Seamless international travel relies on an exchange of information about passengers, as well as verification and identification of travellers using their personal data. Despite ICAO's guidance¹⁶ and the PNR Directive,¹⁷ sharing of the PNR data has not been a trouble-free process.¹⁸ Divergent rules on privacy and data protection led to challenges to the existing bilateral agreements.¹⁹

But technological developments brought on sharing of more sensitive data, in particular—biometric data, which uniquely identifies a person²⁰ through their distinctive physical or behavioural characteristics. For this reason, data protection laws such as GDPR mandate additional safeguards for their processing.²¹ This adoption of biometric data for passenger verification has been experiencing a notable increase. With around 1 billion of ePassports in circulation,²² the IATA's 2023 Global Passenger Survey (GPS) revealed that travellers prioritise speed and convenience and embrace the use of biometrics and off-airport processes to take advantage of seamless travel.²³ It is worth to note that in 2017, IATA launched its own initiative—One ID.²⁴ This initiative, however, focuses predominantly on seamless and contactless travel using biometrics, as a means of improving passengers experience.

The most common technology used in aviation industry to verify passengers using biometric data is facial and fingerprint recognition, with the former being used currently at most airports in combination with eMRTDs. While the increase in the use of biometric data for identity verification is currently driven by efficiency, an earlier push for this type of verification was triggered by security measures following the 9/11 events. In the aftermath of the terrorist attack, the US in particular proceeded with an intelligence-led strategy resulting in collection of vast amounts of personal data²⁵ and an approach that the biometric identification technology may assist with terrorist attacks prevention.²⁶ As a result, the US moved forward with a mandatory collection of biometric data of those who arrive in the US. Similarly, in 2004 the EU implemented the Biometric Passport Regulation²⁷ requiring all EU citizens applying for or renewing passports to undergo a compulsory biometric enrolment. This received criticism over the proportionality of data collection and the approach where all individuals are considered possible crime suspects.²⁸ The case of biometric passports was tested by the CJEU when a passport applicant refused biometric data collection, citing violation of the EU Charter rights under Articles 7 and 8.²⁹ The court ruled fingerprint storage was necessary as it prevented falsification and illegal entry, balancing it

16 Supra note 12

17 Directive (EU) 2016/681 of the European Parliament and of the Council of 27 April 2016 on the use of passenger name record (PNR) data for the prevention, detection, investigation and prosecution of terrorist offences and serious crime OJ L119/132

18 Elena Carpanelli and Nicole Lazzerini, 'PNR: Passenger Name Record, Problems Not Resolved? The EU PNR Conundrum After Opinion 1/15 of the CJEU' (2017) *Air and Space Law* 42.4/5 pg. 382; Arianna Vendaschi, 'Privacy and data protection versus national security in transnational flights: the EU–Canada PNR agreement' (2018) *International Data Privacy Law* 8.2 pg.126; Francesca Morschbach, 'Third Country PNR Mechanisms After the CJEU's Schrems II Judgment' (2023) *Air and Space Law* 48.1 pg. 92

19 See e.g. Article 29 Data Protection Working Party Opinions: 2/2004, 7/2010, 10/2011 and Opinion 1/15 of the Court (Grand Chamber)

20 Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data (adopted 28 January 1981, entered into force 1 October 1985) ETS 108 ('Convention 108'); see also OECD, 'Biometric-based Technologies' (2004) OECD Digital Economy Papers, No.101, OECD Publishing, Paris, pg. 10

21 GDPR, Art. 9

22 ICAO, 'ePassports Basics' <https://www.icao.int/Security/FAL/PKD/Pages/ePassport-Basics.aspx> last accessed 21 December 2024

23 IATA, 'Global Passenger Survey 2023 Highlights' <https://go.updates.iata.org/GPS-Highlights-2023>; and IATA, 'Speed and Convenience Top Priority for Passengers' (25 October 2023) <https://www.iata.org/en/pressroom/2023-releases/2023-10-25-01/> last accessed 21 December 2024

24 IATA, 'One ID' <https://www.iata.org/en/programs/passenger/one-id/> last accessed 21 December 2024

25 Jonathan P. Aus, 'Decision-making under pressure: The negotiation of the biometric passports regulation in the Council' (2006) *ARENA*, 11 pg.10

26 John D. Woodard Jr, 'Biometrics: Facing up to terrorism' (2001) *RAND Arroyo Center*, pg. 2

27 Regulation (EC) 2252/2004 - Council Regulation (EC) No 2252/2004 of 13 December 2004 on standards for security features and biometrics in passports and travel documents issued by Member States

28 Georgios Nouskalis, 'Biometrics, e-identity, and the balance between security and privacy: case study of the passenger name record (PNR) system' (2011) *The Scientific World Journal* 11, pg.476

29 Charter of Fundamental Rights of the European Union, 2012/C 326/02, Article 7 (Respect for private and family life) and Article 8 (Protection of personal data)

against privacy and data protection rights which are not absolute and limitations are provided by law,³⁰ specifically Regulation No 2252/2004,³¹ Article 1(2).

2.3. Facial Recognition Technology (FRT)

In the practice of using biometric data for verification at airports, FRT is the predominant method used in conjunction with eMRTDs for the purpose of identity verification as part of passenger facilitation. It is the most widely used method due to its universality, uniqueness of human face,³² and unlike other biometrics such as fingerprint or iris scan, it can be used at close proximity or at a distance.

However, this technology is not foolproof and errors can lead to risks to national security, criminal justice, public safety, and civil rights.³³ While FRT is mostly considered as a reliable verification method, it does not cover all exceptions, such as cases of twins, siblings or doubles.³⁴ In 2018, a passenger gained entry via an ePassport gate using her cousin's passport at Stansted Airport.³⁵ This is where fingerprint recognition fills the gap.³⁶ Moreover, the efficiency and security are only as good as the technology used to read ePassports and its operational implementation. Heimo et al. suggested that information systems at border control might affect security without necessarily improving it—instead, risking a reduction in aviation and border security.³⁷ This is evidenced in the number of incidents investigated in the United Kingdom (UK) where eGates failed on multiple occasions,³⁸ where the re-inspection of eGates highlighted several shortcomings in the system,³⁹ and where the Home Office probed eGates after a passenger reported a fault to the border control.⁴⁰ The current guidance also acknowledges eGates and microchip errors,⁴¹ which put their reliability into question.

Furthermore, as FRT is a subset of AI, it poses a significant risk of bias⁴² due to the inherent biases in the data on which AI algorithms have been trained. Studies show that face types have strong category associations which may promote stereotype-motivated recognition errors.⁴³ Schuetz therefore called for an adaptive legal framework governing FRT in

30 Case C-291/12, Michael Schwarz v Stadt Bochum [2013] ECLI:EU:C:2013:670

31 See supra note 26

32 Paramjit Kaur, Kewal Krishan, Suresh K. Sharma, and Tanuj Kanchan, 'Facial-recognition algorithms: A literature review' (2020) *Medicine, Science and the Law* 60.2, pg.132

33 Alice Towler, James D. Dunn, Sergio Castro Martínez, Reuben Moreton, Fredrick Eklöf, Arnout Ruifrok, Richard I. Kemp, and David White, 'Diverse types of expertise in facial recognition' (2023) *Scientific reports* 13.1, pg.1

34 Dominik Malčík and Martin Drahanský, 'Anatomy of biometric passports' (2012) *BioMed Research International* pg.3

35 David Bolt, 'An Inspection of Border Force Operations at Stansted Airport' (Independent Chief Inspector of Borders and Immigration GOV.UK, March 2018) https://assets.publishing.service.gov.uk/media/5abb6b9540f0b67d64e21a1c/An_Inspection_of_Border_Force_Operations_at_Stansted_Airport.pdf pg. 31, last accessed 21 December 2024

36 Ziaul H. Choudhury and M. Munir A. Rabbani, 'Biometrics passport authentication using facial Marks' (2014) *Australian Journal of Basic and Applied Science* 8.16 pg.40

37 Olli I. Heimo, Antti Hakkala, and Kai K. Kimppe, 'How to abuse biometric passport systems' (2012) *Journal of Information, Communication and Ethics in Society* 10.2 pg.77

38 See e.g. Harry Taylor and Geneva Abdul, 'Travellers faced long queues at major UK airports after electronic passport gates failed' (The Guardian, 27 May 2023) <https://www.theguardian.com/world/2023/may/27/electronic-passport-gate-fault-causes-long-delays-at-major-uk-airports-epassport-egate>; and Ben Clatworthy, 'Passport e-gates at Heathrow fail for third time in three months' (British Aviation Group, 10 November 2021) <https://www.britishaviationgroup.co.uk/news/passport-e-gates-at-heathrow-fail-for-third-time-in-three-months/>, last accessed 21 December 2024

39 David Neal, 'A re-inspection of ePassport gates' (Independent Chief Inspector of Borders and Immigration, May 2023) https://assets.publishing.service.gov.uk/media/65e075ed2f2b3b001c7cd769/A_re-inspection_of_ePassport_gates_May_2023.pdf last accessed 21 December 2024

40 Katie Dickson, 'Home Office investigating after woman gets through Newcastle Airport e-gates with wrong passport' (Chronicle Live, 15 March 2019) <https://www.chroniclelive.co.uk/news/north-east-news/newcastle-airport-passport-control-gates-15980063> last accessed 21 December 2024—the delayed Home Office report on airport security is not yet available.

41 Border Force, 'Guidance—Reasons you may not get through ePassport gates (eGates)' (GOV.UK, 7 March 2024) <https://www.gov.uk/government/publications/coming-to-the-uk/reasons-you-may-not-get-through-epassport-gates-egates> last accessed 21 December 2024

42 Peter N.K. Schuetz, 'Fly in the Face of Bias: Algorithmic Bias in Law Enforcement's Facial Recognition Technology and the Need for an Adaptive Legal Framework' (2021) *Law & Inequality* 39.221, pg.225

43 Heather M. Kleider, Sarah E. Cavrak, and Leslie R. Knuycky, 'Looking like a criminal: Stereotypical black facial features promote face source memory error' (2012) *Memory & cognition* 40, pg.1200

the US.⁴⁴ In the EU, the AI Act is said⁴⁵ to be future proof and contains provisions aimed to prevent bias in AI training.⁴⁶ But bias is not the only problem with FRT. Schouten and Jacobs argued that biometric systems, on which the FRT relies, are not often designed with security and privacy in mind.⁴⁷ Therefore, legal frameworks such as the GDPR⁴⁸ and AI Act⁴⁹ play crucial role in this regard.

3. Analysis of paperless and seamless air travel examples

ICAO's objectives to ensure seamless travel and efficient passenger facilitation can only be achieved with a successful implementation of processes and technology which comply with applicable laws. An early prototype of a paperless international travel was planned to be trialled between Canada and the Netherlands in 2020. It intended to address the increasing demand for air travel which was expected to grow to 1.8 billion passengers by 2030.⁵⁰ The initiative known as Known Traveller Digital Identity (KTDI) focused on collaboration between various stakeholder and leveraging emerging technology, such as FRT, to streamline passenger facilitation while enhancing confidence in the security measures necessary in air travel. The intention was also to link KTDI with the national systems connected to the ICAO's PKD⁵¹ and exploit the benefits of ePassports available in over 140 Member States.⁵²

The KTDI initiative has become a casualty of the Covid-19 pandemic and no plans exist to revive it.⁵³ However, an alternative initiative—Digital Travel Credential (DTC-1) pilot has been launched with flights resuming between Canada and the Netherlands for travellers flying from Montreal to Amsterdam on KLM airlines.⁵⁴ Although it is anticipated that it will still be several years until they are formally introduced—there is no doubt that international paperless travel is the future direction and that this development will contribute to ICAO's objectives. Consequently, this section will analyse legal and regulatory considerations in cases where FRT is already used as a substitute or alternative to the traditional passport and security checks.

3.1. (The Republic of) India

The launch of DigiYatra⁵⁵ in 2022 by the India's Ministry of Civil Aviation, aiming to transform passenger experience, took airports in India by storm. Available at 13 airports, with further 14 to follow in due course, DigiYatra has been dubbed the airports' 'Walk in the Park' offering a *"seamless, hassle-free and health-risk free air travel."*⁵⁶ This means that travellers can walk through the airport without queuing for their documents to be verified. Instead, biometric identification takes place with the use of FRT and the DigiYatra application. According to India's Ministry of Civil Aviation (MoCA), by the

44 Supra note 41, at pg.254

45 European Commission, 'Shaping Europe's digital future. AI Act' <https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai> last accessed 21 December 2024

46 EU AI Act, Article 10

47 Ben Schouten and Bart Jacobs, 'Biometrics and their use in e-passports' (2009) *Image and Vision Computing* 27.3, pg.305

48 See GDPR, Art. 25, Data protection by design and default

49 See EU AI Act, Chapter 2, Prohibited AI practices

50 Madeleine Hillyer, 'World Economic Forum Consortium Launches Paperless Canada-Netherlands Travel Pilot' (World Economic Forum, 26 June 2019) <https://www.weforum.org/press/2019/06/world-economic-forum-consortium-launches-paperless-canada-netherlands-travel-pilot/>; see also the report: 'The Known Traveller. Unlocking the potential of digital identity for secure and seamless travel' (WEF, January 2018) https://www3.weforum.org/docs/WEF_The_Known_Traveller_Digital_Identity_Concept.pdf; and 'Known Traveller Digital Identity Specification Guidance' (World Economic Forum and Accenture, March 2020) https://www3.weforum.org/docs/WEF_KTDI_Specifications_Guidance_2020.pdf last accessed 21 December 2024

51 Ibid, pg.14; currently 96 Member States participate in ICAO PKD; ICAO, 'ICAO PKD Participants' <https://www.icao.int/Security/FAL/PKD/Pages/ICAO-PKDParticipants.aspx> last accessed 21 December 2024

52 Supra note 22

53 Chris Burt, 'No plans to revive World Economic Forum's user-controlled airport digital ID pilot' (Biometric Update, 7 October 2022) <https://www.biometricupdate.com/202210/no-plans-to-revive-world-economic-forums-user-controlled-airport-digital-id-pilot> last accessed 21 December 2024

54 Bianca Gonzalez, 'Digital Travel Credential trials resume with flights from Netherlands to Canada' (Biometric Update, 4 March 2024) <https://www.biometricupdate.com/202403/digital-travel-credential-trials-resume-with-flights-from-netherlands-to-canada> last accessed 21 December 2024

55 Ministry of Civil Aviation, "'DigiYatra Biometric Boarding System' Reimagining Air Travel in India' (4 March 2021) <https://www.civilaviation.gov.in/sites/default/files/2023-07/Digi%20Yatra%20Policy%20%28DIGI%20YATRA%29.pdf> last accessed 21 December 2024

56 DigiYatra Foundation, 'Re-imagining Airport Experiences, <https://digiyaatrafoundation.com/digi-yatra/> last accessed 21 December 2024

10 August 2023 the technology was used by 3.46 million passengers.⁵⁷ Moreover, the DigiYatra Foundation, co-owned by the Airports Authority of India and private airports intends to align it with IATA's One ID for a global interoperability.⁵⁸ The MoCA states that there is no central storage of passengers' personal information, and that the information is encrypted and stored on travellers' smartphones. It further explains that the data is purged from airports' systems within 24 hours of the traveller's flight departure.

However, in a country in which no data protection legislation is yet in force,⁵⁹ questions have been raised over privacy, data security, and validity of consent in the use of DigiYatra.⁶⁰ Although, the application is said to be voluntary and data is collected with consent,⁶¹ reports suggest that passengers are being enrolled to DigiYatra by airport security staff without consent⁶² or are coerced into doing so.⁶³ A Member of Parliament published a response⁶⁴ from the MoCA to questions regarding involuntary enrolment, in which the MoCA insisted that the enrolment is voluntary and requires passengers' consent. Earlier, several posts on X⁶⁵ warned about structured collection of biometric data which also prompted a response on the platform from the MoCA reiterating that no data was collected centrally.⁶⁶ But sceptics argue that the lack of privacy laws and third-party access to the data remain a significant issue.⁶⁷

Despite the reassurances, the legislative approach to protection of data and privacy in India is still an open question. While on the 11 August 2023 India published its Digital Personal Data Protection Act 2023,⁶⁸ the law has not yet come into force. Moreover, while the previous iterations of the Bill⁶⁹ alluded to special treatment of sensitive personal data such as localisation⁷⁰, undertaking a Data Protection Impact Assessment,⁷¹ defining⁷² and listing biometric data as sensitive data,⁷³ as well as limits on processing of certain forms of biometric data,⁷⁴ these provisions no longer exist in the finalised Act. This means that the legislation now treats all data in the same way without any special treatment or additional safeguards to data of particularly sensitive nature, such as biometrics.

While the right to privacy has been confirmed by the Supreme Court in *Justice K.S. Puttaswamy (Retd.) v Union of India*,⁷⁵ India's blanket approach to facial recognition is a controversial issue. In 2019, the National Crime Records Bureau (NCRB)

-
- 57 Ministry of Civil Aviation, 'DigiYatra to be launched at 6 more airports' (11 August 2023) pib.gov.in/PressReleaseIframePage.aspx last accessed 21 December 2024
- 58 Peden D. Bhutia, 'Future of Airports in India: DigiYatra for International Travel, Coming Soon', (Skift, 27 May 2024) <https://skift.com/2024/05/27/future-of-airports-in-india-digiyatra-for-international-travel-coming-soon/> last accessed 21 December 2024
- 59 Information accurate at the time of writing—India's Digital Personal Data Protection Act 2023 was published and notified in the Official Gazette on the 11 August 2023, but it has not come into force yet.
- 60 Sukriti, 'DigiYatra and the Defect in the Idea of "Consent"' (Tech Policy, 30 April 2024) <https://www.techpolicy.press/digi-yatra-and-the-defect-in-the-idea-of-consent/> last accessed 21 December 2024
- 61 DigiYatra, 'DigiYatra Foundation (DYF) Privacy Policy' <https://digiyatrafoundation.com/privacy-policy/> last accessed 21 December 2024
- 62 Jagriti Chandra, 'Centre's DigiYatra enrolment takes off as airport security staff sign up flyers without their consent' (The Hindu, 6 January 2024) <https://www.thehindu.com/news/national/passengers-say-cisf-and-airport-staff-are-collecting-biometric-data-without-consent/article67710134.ece?ref=static.internetfreedom.in> last accessed 21 December 2024
- 63 Supra note 60
- 64 Saket Gokhale, 'VERY IMPORTANT: Regarding DigiYatra at airports' (X, 27 January 2024) <https://x.com/SaketGokhale/status> last accessed 21 December 2024
- 65 Formerly Twitter platform
- 66 Ankita Chakravarti, 'DigiYatra passengers' data stored on their own device not in central storage, govt says' (India Today, 18 March 2023) <https://www.indiatoday.in/technology/news/story/digiyatra-passengers-data-stored-on-their-own-device-not-in-centralised-storage-govt-says-2348388-2023-03-18> last accessed 21 December 2024
- 67 Rizwan Hera, 'DigiYatra: Experts Flag Privacy Concerns Over the Facial Recognition App' (Boom, 21 March 2023) <https://www.boomlive.in/explainers/digiyatra-air-travel-eased-face-recognition-privacy-breached-civil-aviation-lyotiraditya-scindia21396> last accessed 21 December 2024
- 68 Publication of the Digital Personal Data Protection Act 2023 (No.22 of 2023) in the Gazette of India <https://www.meity.gov.in/writereaddata/files/Digital%20Personal%20Data%20Protection%20Act%202023.pdf>
- 69 India's Digital Personal Data Protection Act has undergone a number of changes, see here: insideprivacy.com/wp-content/uploads/sites/51/2019/12/India-Personal-Data-Protection-Bill-2019-Redline-of-Changes-2.pdf for the redline of the previous India Personal Data Protection Bill 2019
- 70 Ibid., Chapter VII, S.33 and 34
- 71 Ibid., Chapter VI, S.27
- 72 Ibid., Chapter I, S.3(7)
- 73 Ibid., Chapter I, S.3(35)
- 74 Ibid., Chapter XIV, S.92
- 75 Writ Petition (Civil) No 494 of 2012; (2017) 10 SCC 1; AIR 2017 SC 4161

issued a Request for Proposal for an Automated Facial Recognition System (AFRS).⁷⁶ Although the purpose of this system will be to identify criminals or missing people, growing concerns are being raised over mass surveillance. Similarly, India's national programme, Aadhaar, which provides individuals with a unique number linking demographic and biometric information was also alleged to be a form of surveillance.⁷⁷ Although theoretically voluntary, the Aadhaar Act⁷⁸ brought on the reliance on it for access to benefits and services, making it mandatory.⁷⁹

Aadhaar number is necessary for DigiYatra enrolment, as e-Passports are not yet available in India. Therefore, together with Aadhaar number, the possibility of AFRS, and a lack of data protection laws governing the use of the data, activists are cautioning travellers about the use of DigiYatra.⁸⁰ The rollout of DigiYatra has been presented at the 15th TRIP Symposium as a form of shortening passenger processing times at airports using biometric data,⁸¹ and although it is planned to be open to international travellers,⁸² the ongoing concerns over privacy and security of data⁸³ may have a significant impact on the continued success of its rollout.

3.2. The United States (US) of America

Despite privacy concerns, India's DigiYatra initiative achieved substantial enrolment to date. However, it was the US that was the forerunner in the use of FRT and biometrics in aviation. Rather than convenience of hassle-free travel, the primary driver for the implementation of FRT in the US was to enhance security in response to the 9/11 events.⁸⁴ Currently, the country boasts 238 airports that utilise Biometric Facial Comparison Technology.⁸⁵

In the US, the FRT at airports is governed by a combination of federal laws, regulations, and guidelines, including the Aviation and Transportation Security Act⁸⁶ which established the Transportation Security Administration (TSA) instructing it to use biometric screening technologies for security checks, Customs and Border Protection operating under the Department of Homeland Security, Consolidated Appropriations Act of 2016⁸⁷ which provided funding and legislative support for the development of the biometric entry-exit system, and Intelligence Reform and Terrorism Prevention Act of 2004⁸⁸ which mandated the development of this technology to improve national security. NIST, although not mandatory, also offers digital identity guidelines which emphasize the importance of securing biometric data to protect individual privacy.⁸⁹

76 Anushka Jain, 'NCRB's National Automated Facial Recognition System' (Panoptic Tracker, 5 May 2024) <https://panoptic.in/about> last accessed 21 December 2024

77 Kalyani S. Menon, 'Aadhar: Wrong Number, or Big Brother Calling?' (2015) Socio-Legal Review 11.2, pg.105; see also: Pawan Singh, 'Aadhaar and data privacy: biometric identification and anxieties of recognition in India' (2021) Information, Communication & Society, 24.7 pg.999

78 Aadhaar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Act, 2016

79 Sai A Yalavarthy, 'Aadhaar: India's National Identification System and Consent-Based Privacy Rights' (2023) Vanderbilt Journal of Transnational Law 56, pg.624-674

80 Disha Verma, 'Resist Surveillance Tech, Reject DigiYatra' (Internet Freedom Foundation, 16 January 2024) <https://internetfreedom.in/reject-digi-yatra/> last accessed 21 December 2024

81 ICAO, 'Presentations and Biographies' [Hareendranathan E.P, Executive Director, Indian Aviation Academy, New-Delhi] (28 June 2019) <https://www.icao.int/Meetings/TRIP-Symposium-2019/Pages/Presentations.aspx> last accessed 21 December 2024

82 Dev Kachari, 'DigiYatra to open up for international travel, accept passport as an ID' (*Infra/Economic Times*, 29 December 2023) <https://infra.economictimes.indiatimes.com/news/aviation/digi-yatra-to-open-up-for-international-travel-accept-passport-as-an-id/106378139> last accessed 21 December 2024

83 Shaji A. George, S. Sagayarajan, T. Baskar and Digvijay Pandey, 'From Paperwork to Biometrics: Assessing the Digitization of Air Travel in India through DigiYatra' (2023) *Partners Universal International Innovation Journal* 1.4, pg.118

84 *Supra* note 26

85 U.S. Customs and Border Protection, 'Airports | CBP Biometrics' (30 January 2024) <https://www.cbp.gov/travel/biometrics/airports> last accessed 21 December 2024

86 Aviation and Transportation Security Act of 2001 (Public Law 107-71—Sept.19, 2001)

87 Consolidated Appropriations Act of 2016 (Public Law 114-113—Dec.18, 2015), Sec.411.

88 Intelligence Reform and Terrorism Prevention Act of 2004 (Public Law 108-458—Dec.17, 2004), Sec.7208

89 National Institute of Standards and Technology, NIST Special Publication 800-63-3: Digital Identity Guidelines (*U.S. Department of Commerce*, 2017) <https://pages.nist.gov/800-63-4/> last accessed 21 December 2024

The Transport Security Administration (TSA) uses FRT to enhance identity verification and security. Its proposed expanded rollout⁹⁰ triggered a letter to the Congress from 14 Senators criticising TSA's plans as a threat to privacy and civil liberties.⁹¹ Additionally, the US also boasts a range of Trusted Traveller Programs for those who want to get through the airport quickly. These include TSA PreCheck⁹² for US citizens, Global Entry⁹³ for international travellers, or available with some airlines—private program, Clear.⁹⁴ These programs are voluntary, paid services, which utilise biometric data for identity verification. Paradoxically, reports suggest that as many as 18m⁹⁵ passengers have enrolled for the TSA PreCheck and 17m for Clear,⁹⁶ only to find they have become so popular that the use of free security check lanes has become so rare—it became faster than the paid services.⁹⁷

In comparison with India, the US has made some progress in respect of implementation of privacy laws, but they still resemble a patchwork approach. The country lacks a comprehensive federal privacy regime. The Privacy Act of 1974 is both outdated and limited to federal agencies, and the residual laws are either state-based⁹⁸ or sector-specific.⁹⁹ While some states have made progress introducing laws covering the processing of biometrics,¹⁰⁰ the approach remains fragmented.

Moreover, unlike non-US citizens, the US citizens can opt-out of the biometric processing at US airports. This is pertaining to the Fourth Amendment¹⁰¹ right which prohibits unreasonable searches, and following *Katz v United States*,¹⁰² the Supreme Court confirmed that the protection included the intrusion of privacy. However, similarly to India, reports suggest that passengers are discouraged from opting out, either because it will cause delays¹⁰³ or because travellers are not informed about how to do it.¹⁰⁴ Issues also arise in relation to the retention of data, as the biometric data of the US citizens is deleted after 12 hours, while the non-US citizens is retained for up to 75 years.¹⁰⁵ This retention period also created friction in respect of PNR data exchange, discussed earlier.¹⁰⁶

While there is no doubt that thorough airport checks serve greater public interest, concerns continue over growing utilisation of AI which is not always accurate, may lead to bias,¹⁰⁷ and facilitation of surveillance and social control.¹⁰⁸ Just like in India, due to a lack of specific guidance and laws ensuring transparency, there is a growing activism in the US against the use of FRT at airports.¹⁰⁹

90 David Pekoske, 'TSA Biometrics Strategy. For Aviation Security & the Passenger Experience' (*Transportation Security Administration*, July 2018) https://www.tsa.gov/sites/default/files/tsa_biometrics_roadmap.pdf last accessed 21 December 2024

91 Copy of the letter dated 2 May 2024, is available here: https://www.merkley.senate.gov/wp-content/uploads/2024_05_02_LTR-TSA-Freeze-to-Leadership.pdf last accessed 21 December 2024

92 TSA PreCheck, <https://www.tsa.gov/precheck> last accessed 21 December 2024

93 U.S. Customs and Border Protection, 'Global Entry. Trusted Traveler Program Enrollment' (25 October 2023) <https://www.cbp.gov/travel/trusted-traveler-programs/global-entry> last accessed 21 December 2024

94 Clear, <https://www.clearme.com/> last accessed 21 December 2024

95 Nathaniel Meyersohn, 'The newest pain point in air travel is slowing down travelers who paid for convenience' (*CNN Travel*, 22 December 2023) <https://edition.cnn.com/2023/12/22/travel/tsa-precheck-clear-airport-security> last accessed 21 December 2024

96 Clear, 'RESERVE powered by CLEAR Hits Major Milestone of 5 Million Reservations' (*Clear*, 29 August 2023) <https://ir.clearme.com/news-events/press-releases/detail/81/reserve-powered-by-clear-hits-major-milestone-of-5-million> last accessed 21 December 2024

97 Supra note 95

98 See e.g. California Consumer Privacy Act (CCPA)

99 See e.g. Health Insurance Portability and Accountability Act of 1996 (HIPAA) (Public Law 104-191—Aug. 21, 1996)

100 See e.g. Illinois Biometric Information Privacy Act (BIPA)

101 US Constitution, Amendment IV

102 *Katz v. United States*, 389 U.S. 347 (1967)

103 Shira Ovide, 'You can say no to a TSA face scan. But even a senator had trouble' (*The Washington Post*, 11 June 2023) <https://www.washingtonpost.com/technology/2023/07/11/tsa-airport-security-facial-recognition/> last accessed 21 December 2024

104 Allie Funk, 'I Opted Out of Facial Recognition at the Airport—It Wasn't Easy' (*Wired*, 2 July 2019) <https://www.wired.com/story/opt-out-of-facial-recognition-at-the-airport/> last accessed 21 December 2024

105 Congressional Research Focus, 'Biometric Entry-Exit System: Legislative History and Status' (*In Focus*, 27 August 2020) <https://sgp.fas.org/crs/misc/IF11634.pdf> last accessed 21 December 2024

106 See supra note 18

107 Supra note 41

108 Daniel J. Solove, 'Artificial Intelligence and Privacy' (24 April 2024) 77 *Florida Law Review* (forthcoming 2025), pg. 50

109 Merve Hickok and Evanna Hu, 'Don't Let Governments Buy AI Systems That Ignore Human Rights: Even in the absence of broader AI regulation, federal procurement provisions could set expectations for data quality, model performance, risk assessments, and documentation' (2024) *Issues*

3.3. The European Union (EU)

Compared with the two examples so far, the EU's uniqueness is in its union of 27 independent European countries, most of which are party to the Schengen Agreement.¹¹⁰ In a stark contrast to India and the US, the EU boasts a robust privacy and data protection framework. GDPR's success in particular can be seen in many non-European countries replicating and adopting similar, GDPR-like, data protection regimes.¹¹¹ The regulation ensures that biometric data¹¹²—when used to identify individuals, is considered special category of personal data, processing of which is prohibited unless conditions in Article 9 are met.¹¹³ Just like in India and the US, activists warn against mass surveillance.¹¹⁴ However, under Article 5,¹¹⁵ the EU AI Act specifically prohibits or imposes requirements for certain AI practices, such as the use of 'real-time' remote biometric identification in public spaces for the purposes of law enforcement (subject to few exceptions)¹¹⁶ and principally prohibits AI facial recognition for mass surveillance.¹¹⁷ In the Act, publicly accessible spaces refer to any physical space that is accessible to any undetermined number of individuals, regardless of private or public ownership or the activity conducted there—this includes airports.¹¹⁸

In May 2024, the European Data Protection Board (EDPB)—an independent body which ensures consistent application of the GDPR, issued an opinion on the use of FRT at airports.¹¹⁹ The EDPB addressed four specific scenarios in relation to the storage (under Articles 5(1)(f), 25 and 32 of the GDPR)¹²⁰ of biometrics obtained in the course of security checkpoints, baggage drop-off, boarding, and access to the passenger lounge—aspects of travel which make the journey more efficient and convenient, rather than necessitate the checks for the border control purposes. In that respect the EDPB concluded that for the processing to be compatible with GDPR, the biometric data should be stored on passengers' devices under their sole control or alternatively that the biometrics could be stored in a centralised storage, within the airport, but encrypted with the encryption key solely in the passenger's control. On site or cloud storage where the encryption key is in the control of the airport would not be considered compatible with the GDPR, considering that alternative options exist. This is because, storage of biometric templates carries a heightened risk as, unlike passwords, it cannot be changed if stolen or misused.

Aside from the opinion on storage, the EDPB also commented on other aspects, such as acknowledging that to use biometrics for security checkpoints, baggage drop-off, boarding, and access to the passenger lounge requires explicit consent.¹²¹ Such consent must be freely given and must be "*without any detriment (such as significantly longer delays for passengers who do not consent)*."¹²² The existence of robust data protection laws and specific guidance on processing data that can be called upon, is a sharp contrast between the EU and the approach in the US or India, where allegations emerged that individuals were enrolled without consent or that were unable to opt-out from the use of FRT.

in Science & Technology, 40.3; see also: Jeramie D. Scott, 'Don't Take It at Face Value: Why TSA's Implementation of Facial Recognition is More Dangerous Than You Think' (Epic, 30 June 2023) <https://epic.org/dont-take-it-at-face-value-why-tsas-implementation-of-facial-recognition-is-more-dangerous-than-you-think/> last accessed 21 December 2024

110 Schengen Agreement is a treaty which created Schengen Area where border controls have largely been removed enabling freedom of movement of people, goods and services between the signatory countries. Ireland and Cyprus are the only EU member states not party to the Agreement, but other European non-EU states (Iceland, Norway, Switzerland) have signed up to the Schengen Agreement.

111 e.g. The Personal Data Protection Act 2019 ('PDPA') in Thailand or General Personal Data Protection Law ('LGPD') in Brazil are just couple of examples.

112 GDPR, Article 4(14) defines 'biometric data' as personal data resulting from specific technical processing relating to the physical, physiological or behavioural characteristics of a natural person, which allow or confirm the unique identification of that natural person, such as facial images or dactyloscopic data;

113 GDPR, Article 9. Processing of special categories of personal data

114 European Data Rights, 'How to fight Biometric Mass Surveillance after the AI Act: A legal and practical guide' (EDRI, 27 May 2024) <https://edri.org/our-work/how-to-fight-biometric-mass-surveillance-after-the-ai-act-a-legal-and-practical-guide/> last accessed 21 December 2024

115 EU AI Act, Article 5. Prohibited Artificial Intelligence Practices

116 *Ibid*, Article 5.1(h), 5.2, and 5.3

117 *Ibid*, Recital 43

118 *Ibid*, Recital 19

119 Opinion 11/2024 on the use of facial recognition to streamline airport passengers' flow (compatibility with Articles 5(1)(e) and(f), 25 and 32 GDPR

120 Art.5(1)(f) – integrity and confidentiality, (f) - storage limitation; Art.25 - Data protection by design and by default; Art.32 - Security of processing

121 GDPR, Article 9.2(a)

122 *Supra* note 119, pg.11

The EDPB acknowledged that the use of biometrics and FRT by airport operators and airline companies streamlines the passenger flow at airports. This means that while such processing carries risks, it may be beneficial for an efficient passenger facilitation and a seamless travel experience, but that implementation of such systems must be compatible with relevant laws to ensure both privacy and protection of passengers' personal data.

The EU also has a number of initiatives aiming to improve passenger facilitation at airports. Specifically, plans exist to replace paper documents with a Digital Identity Wallet.¹²³ This wallet would hold various documents including a passport, in an electronic format and would contain biometric data. The wallet would be interoperable in the EU and efforts are being made to negotiate its acceptability outside of the EU and the Schengen Area.¹²⁴ To achieve that, the EU is specifically looking towards ICAO's Digital Travel Credentials (DTC)¹²⁵ based on Document 9303¹²⁶ to ensure international interoperability of travel documents. Additionally, Croatia, Finland, and the Netherlands are already trialling the DTC system, while two airports in Italy, Milano Linate and Catania, are trialling 'FaceBoarding'¹²⁷—a system where enrolled passengers will be able to travel without showing the physical or digital documents. In a similar fashion to the US, the new EU Entry Exit System (EES)¹²⁸ will require non-EU visitors to subject themselves to collection of biometrics upon arrival. All of these initiatives rely on utilisation of biometrics and FRT. Therefore, it is reasonable to say that there is an obvious increasing momentum towards digital credentials which will enable seamless, secure, and efficient travel.

4. Discussion

Growing demand for air travel necessitates measures to enhance efficiency of passenger facilitation without compromising security. Technological advancements enable this through the use of biometrics, FRT, and digitalisation of documents. However, an ongoing concern over privacy and data protection remains. The examples of India, the US, and the EU illustrate different approaches in implementation of privacy and data protection laws, and as a result, the utilisation of biometrics and FRT. The EU boasts comprehensive laws that protect individuals' rights, while India and the US¹²⁹ have been making only incremental progress. However, the fast technological developments necessitate urgent legal frameworks. The differences in approaches to privacy have previously caused disruption (e.g. PNR) and are likely to continue with FRT and biometric data processing, over fears of mass surveillance. This may hinder ICAO's objective of seamless travel experience and efficient passenger facilitation.

The approach to sharing biometrics appears to be evolving among passengers. In 2018, the KTDI report acknowledged that individuals tend to be sceptical about sharing their personal data with authorities, but also emphasised that advance and seamless provision of biometric data will expedite security, contribute to safety, and make their journey more efficient.¹³⁰ Subsequently, the 2023 IATA's survey¹³¹ shows that speed and convenience of getting through the airport are top priorities for passengers and that they are embracing the use of biometrics to expedite their journey. Professor Daniel J. Solove critiqued the concept of 'privacy paradox'¹³²—a theory which suggests that people tend to claim they

123 EU Digital Identity Wallet, 'What is the EU Digital Identity Wallet' (European Commission) <https://ec.europa.eu/digital-building-blocks/sites/display/EUDIGITALIDENTITYWALLET/What+is+the+wallet> last accessed 21 December 2024

124 Jeremy Springall, 'Biometrics and the future of travel beyond the airport' [Panel discussion] (*International Airport Review*, 14 June 2024) <https://www.internationalairportreview.com/video/222629/biometrics-and-the-future-of-travel-beyond-the-airport/> last accessed 21 December 2024

125 ICAO, 'Guiding Core Principles for the Development of Digital Travel Credential (DTC)' (ICAO, July 2023) https://www.icao.int/Security/FAL/TRIP/PublishingImages/Pages/Publications/ICAO%20GUIDING%20CORE%20PRINCIPLES%20DTC_Draft%20v4.8.pdf last accessed 21 December 2024

126 See *Supra* note 2

127 Liv Kelly, 'These European airports are trialling a new passport-free boarding process' (*TimeOut*, 16 May 2024) <https://www.timeout.com/news/these-european-airports-are-trialling-a-new-passport-free-boarding-process-051624> last accessed 21 December 2024

128 European Commission, 'Entry/Exit System (EES)' https://home-affairs.ec.europa.eu/policies/schengen-borders-and-visa/smart-borders/entry-exit-system_en last accessed 21 December 2024

129 On the 7 April 2024 Sen. Maria Cantwell and U.S. Rep. Cathy McMorris Rodgers proposed the American Privacy Rights Act (APRA) aiming to remedy the existing patchwork of US privacy laws. This is a second attempt as the previously proposed comprehensive privacy bill American Data Privacy Protection Act (ADPPA) introduced in previous congressional sessions did not advance to become law. See: *draft available at: www.commerce.senate.gov/services/files/3F5EEA76-5B18-4B40-ABD9-F2F681AA965F* last accessed 21 December 2024

130 *Supra* note 50, at pg.22

131 *Supra* note 23

132 Daniel J. Solove, 'The Myth of the Privacy Paradox' (2021) *George Washington Law Review* 89.1, pg.2

value privacy but are willing to trade it for goods and services. On the surface, IATA's survey seems to corroborate the theory suggesting that passengers are indeed willing to trade their data for speed and convenience of getting through the airport. But the 2023 SITA survey¹³³ offers further insight. Specifically, passengers are increasingly more comfortable using their biometric data if it improves travel experience—but that they are more comfortable when it is used for boarding, security, and identity verification and less so for check-in, bag drop, and lounge access. This suggests that travellers are selective as to how they share their data, confirming Solove's theory that people make decisions about risk in a specific context. Privacy laws can be catalytic in enabling passengers such selective choice and in the absence of such laws, guidelines would not go amiss. This is where the role of ICAO is paramount.

ICAO considers year 2024 to be the Year of Facilitation (FAL2024).¹³⁴ With its TRIP strategy and aim to foster a comprehensive global approach to traveller identity, ICAO is best placed to develop guidelines for the processing of biometric data and the use of FRT in aviation. Such guidelines would complement the existing ones, such as PNR and API, ensure international consistency in light of fragmented privacy laws worldwide, and support the objective of efficient passenger facilitation and seamless travel experience.

5. Conclusion

This article considered the legal and regulatory landscape of paperless travel. In light of an ever-increasing number of air passengers, seamless travel experience and efficient passenger facilitation are necessary for a hassle-free and secure international travel. While the technology that enables paperless travel already exists, the implementation differs between the Member States. While India's primary focus is on efficiency, in the US the main priority is security, albeit both countries consider the other aspect a benefit. The European Schengen Area allows passport-less travel within its boundaries, but the EU's EES systems for non-EU nationals will make collection of biometric data compulsory. In addition, number of EU countries are also trailing 'FaceBoarding' possibly removing the need for documents in the future altogether.

The importance of privacy cannot be underestimated. Surveys show that privacy and data protection are essential and will remain a concern for passengers until transparent rules are applied globally and consistently. The establishment of guidelines such as PNR by ICAO triggered a development of legislations in various Member States. This shows that, while approaches to privacy differ globally, ICAO can be influential in prompting a roll out of suitable rules that will provide confidence to passengers and accelerate progress to achieving ICAO's objective of seamless travel experience and efficient passenger facilitation.

133 SITA, '2023 Passenger IT Insights' <https://www.sita.aero/globalassets/docs/surveys--reports/passenger-it-insights-2023.pdf> last accessed 21 December 2024, pg. 9

134 ICAO, 'ICAO'S Traveller Identification Programme (TRIP) Strategy: A critical enabler of Global Air Transport Facilitation' <https://www.icao.int/Security/FAL2024/Documents/Flyers/TRIP-and-Year-of-Facilitation.pdf> last accessed 21 December 2024

A Concise Guide to the Civil Aviation Act of Iran

Milad Sadeghi* & Vahideh Najafi**

Introduction

Civil aviation in Iran is generally governed by *'the Civil Aviation Act'* of July 19, 1949, with the subsequent amendments and additions (hereinafter the Act).

Although the provisions of the Act are not divided into specific chapters or parts, it would be better to provide a snapshot of the Act and show a diverse range of topics covered by this Act. The Act, which consists of 35 articles, can be split into seven chapters:

- Chapter I: General Provisions (articles 1 to 2) covering the definition of *'Aircraft'* and the scope of application. The Act is devoid of special provision concerning its main purpose, but on the basis of articles 4, 5, 20, 21, and 22 we could infer that the concept of *'flight safety'* constitutes a major purpose of the Act.
- Chapter II: Sovereignty, Powers and Duties of the State and its Competent Authorities with Regard to Airspace and Aviation Activities (articles 3 to 6 and 10, 15, 16, 18, 19, 20, 21).
- Chapter III: Rights of Iranian and Foreign Aircraft (articles 7 to 9).
- Chapter IV: General Rules for Conducting Aviation Activities (articles 11 to 14, and 17).
- Chapter V: Governing Law on the Juridical Relations Between the Persons on Board an Aircraft Flying over Iran (article 29).
- Chapter VI: Sanctions and Penalties or Penal Provisions¹ (articles 23 to 35, excluding article 29).
- Chapter VII: Concluding Provision or Regulations for the Enforcement of the Act (article 22).

1. The Act and its main features

According to article (5) of the Act, *'for the implementation of this Act an independent organization, to be known as 'the Civil Aviation Organization' (hereinafter the CAA), affiliated to 'the Ministry of Roads and Urban Development' shall be established'*.

While the CAA's principal responsibilities are enumerated in that article, such as the supervision of civil aviation activity according to relevant regulations for the purpose of preventing jeopardies, avoiding harmful competition between air carriers, safeguarding public expedencies, and striving for the progress and development of civil aviation and encouraging the relevant industries, the Act has established a council called *'the High Council of Civil Aviation'* (after this the HCCA) which is working besides the CAA. Some commentators opine that the HCCA constitutes the supreme decision-making body in the aviation industry of Iran.² However, based on article (6) of the Act, this Council is competent to address several important issues in civil aviation. The Act provides that *'determining the general policy of civil aviation' should be made by the HCCA'*.

Additionally, in accordance with article (6), the HCCA determines and approves the fare for air transportation of passenger and cargo. Nonetheless, there is a new judgment handed down by the *'Specialized Board for Administrative and*

* Attorney at Law, Iran Central Bar Association; Professional Arbitrator of the Center for Dispute Settlement of Judiciary; Specialist in Aviation Law and Disputes; Legal Advisor to the Civil Aviation Organization of the Islamic Republic of Iran; Doctoral Candidate in Law, Faculty of Law and Political Science, University of Tehran (thesis title: *'The Philosophy of Aviation Law'*; under the supervision of Dr. Hassan Jafari Tabar).

** Director of Legal and International Affairs of Civil Aviation Organization of the Islamic Republic of Iran; Doctoral Candidate in Law, Islamic Azad University, (thesis title: *'The Role of Civil Aviation Organization in Regulating Air Transport Industry with the Provision of an Effective Model'*). Please note that the views expressed and the translation of the legal material made in this article are purely those of the authors, and thus may not in any circumstances be regarded as an official view.

1 Substantive and procedural.

2 Mojtaba Eshraghi Arani, *The Civil Aviation Act in the Current Legal Order*, Tehran: Mokhtab Publishing, 2015, page 56.

Public Affairs of the Administrative Court of Justice that insists, by the virtue of enactment of *'the Act on the Fifth Five-Year Development Plan of the Islamic Republic of Iran'* (paragraph (b) of article 161 of this Act), the pricing issue through the HCCA has ceased to exist; accordingly, by implementing this Act, the fare for air transportation has been liberalized and made on the basis of supply and demand process.³

Recently, the Government enacted a proposal entitled *'the Bill for Amendment of Article (6) of the Civil Aviation Act'*. The said Bill, including its introduction of justification, demonstrates that the Government disagrees with the judicial opinion stated above. Pursuant to the Bill, the HCCA approves the fare for air transportation of passenger and cargo with the proposal by the CAA. Further, the CAA, by taking into consideration some criteria including the supply and demand, the quality of provided services, the total price, and the flight route, submits the price list proposal to the HCCA for approval.⁴ The introduction of justification of the Bill, points out that *'... for the sake of transparency and removal of legal ambiguity regarding the authority of the HCCA in approving the fare for air transportation of passenger and cargo based on certain criteria, the following Bill is put forward for the fulfillment of legal formalities'*.

Apart from those powers and duties of the CAA and HCCA, signifying the unique nature of each power and duty, the CAA and the HCCA, to some extent, fulfill a common mission. They are responsible for studies in matters relating to civil aviation. The difference lies in the fact that the HCCA's duty to study is conditioned upon the referral of a matter by the Prime Minister⁵ or the suggestion of a matter by one of the HCCA's members.

As some concluding remarks, it should be noted that the Act has multifarious provisions (both substantive provisions and procedural ones) with regard to civil aviation activities in our country that can be summarized as follows.

1.1. Definition of aircraft

According to article (1) of the Act, *'the term aircraft, used in this Act, represents a means of transport which can derive its support in the atmosphere from the reaction of the air'*. Does the Act apply to unmanned aircraft? It is not definite, but it could be argued that some provisions of the Act are equally applicable to the unmanned aviation world. For instance, article (15) of the Act provides that *'the CAA is the only authority empowered to issue any permit relating to civil aviation affairs and certificate for the technical experts of civil aviation as well as the license for air operating'*. Moreover, from the international civil aviation law perspective, *"Unmanned Aircraft (UA) are, indeed, aircraft; therefore, existing SARPs [Standards and Recommended Practices] apply to a very great extent"*.⁶

Nevertheless, the risks posed by the world of unmanned aviation are seriously special and the standard approaches to manned aviation cannot always be applied to unmanned aircraft activities. Perhaps for this reason, the Circular 328-AN/190 of the International Civil Aviation Organization states that *"the complete integration of UAS [Unmanned Aircraft Systems] at aerodromes and in the various airspace classes will, however, necessitate the development of UAS-specific SARPs to supplement those already existing"*.⁷

Currently, in aviation law of Iran there is a directive adopted by the CAA, entitled *'Remotely Piloted Aircraft Regulation'* (Directive No. 9060, with last revision in November 2021). Furthermore, prior to Directive No. 9060, the Board of Ministers enacted a piece of regulation called *'the Regulation on the Management and Organization of Non-Military Ultra-light Flying Vehicles'*, enacted on 15 August 2007. Flying vehicles in this regulation cover all non-military ultralight flying

³ Judgment No. 140231390002091342 of November 5, 2023.

⁴ For further information, see: Milad Sadeghi, *The Dance of Wings and Chains: On Pricing of Air Transportation Services*, Jahan Eghtesad Daily, September 27, 2024, No. 8520.

⁵ It is worth mentioning that the premiership has been eliminated by revising the Constitution of the Islamic Republic of Iran. Prior to the revision, the Prime Minister had been the head of the Board of Ministers, but in 1989, this power was transferred to the President (Article 134 of the Constitution of the Islamic Republic of Iran).

⁶ International Civil Aviation Organization, Circular 328-AN/190: Unmanned Aircraft Systems (UAS), at 1.7.

⁷ Ibid.

vehicles with a '*Maximum Takeoff Weight (MTOW)*' of not more than (600) kilograms and includes both the unmanned aircraft and model aircraft.

1.2. Cabotage rule

On the basis of article (9) of the Act, '*commercial transportation of passenger, cargo and mail or one of them, from one point in the country to another point of the country, is reserved exclusively to Iranian aircraft*'.

1.3. Registration of aircraft

Under article (11) of the Act, '*an aircraft shall be deemed to possess Iranian nationality when it is registered in the Aircraft Registry kept in the Civil Aviation Organization. The following are the requirements for registration*:

- a) *The aircraft shall not be registered in any other country, and if previously so registered in the other country, shall be deregistered from the registry of that country.*
- b) *The aircraft shall belong to Iranian nationals, either person or company*'.

Anyway, the aviation community may face a challenge over the dispute about invalidity of the aircraft registration (i.e. nationality registration). Which courts have the authority to decide whether a nationality registration is invalid or not?

Comparative study shows that the answer to this question should be dealt with by the court of competent jurisdiction of the foreign country, not by the courts of the country to which the aircraft is/was imported.⁸ The Act lacks any provision for this question; accordingly, Iranian courts may resort to the general rules governing their jurisdiction.

1.4. Air Operating License

According to article (17) of the Act, '*any person, natural or legal, desiring to undertake commercial air transportation of persons and or cargo, should be an Iranian national and should have previously obtained an Air Operating License (AOL) from the Civil Aviation Organization. This license will be granted only if the High Council of Civil Aviation is satisfied that the demanded air operation is in the country's expedencies as well as society's needs, and when the said Council is assured that the applicant is capable of performing the type of demanded air operation in the proper manner*'. In that article, is '*the Air Operating License (AOL)*' distinct from '*the Air Operator Certificate (AOC)*'? The AOC is defined by Annex 6 to the Convention on International Civil Aviation (Chicago Convention of 1944) as "*A certificate authorizing an operator to carry out specified commercial air transport operations*".⁹ The Elgar Concise Encyclopedia of Aviation Law, an important and reliable source for the aeronautical law studies, adds to this definition that the AOC "*is the approval granted from a national aviation authority, that is, the civil aviation authority or another competent body, to an aircraft operator allowing it to operate aircraft for commercial purposes. Without this document an operator is not allowed to carry [on] any commercial air transport operations, which means that AOC is something an operator should obtain prior to applying for commercial rights in a domestic or international air transport market. A certified copy of AOC should be carried onboard an airplane at all times*".¹⁰

8 See the 14 CFR, Part 47 (up to date as of 12/09/2022), Aircraft Registration, § 47.37 (b)(2); it provides that: "For the purpose of paragraph (a)(3) of this section, satisfactory evidence of termination of the foreign registration may be-
A statement, by the official having jurisdiction over the national aircraft registry of the foreign country, that the registration has ended or is invalid, and showing the official's name and title and describing the aircraft by make, model, and serial number; or
A final judgment or decree of a court of competent jurisdiction of the foreign country, determining that, under the laws of that country, the registration has become invalid".

9 Application of the annexes to the Convention on International Civil Aviation in aviation law of Iran seems to be a delicate issue and deserves to be considered precisely. For example, 'the Authorization Act for the Approval of Technical Regulations and Rules Relating to the Convention on International Civil Aviation (the Chicago Convention)' enacted on 29 June 1977, provides that, 'the Board of Ministries, based on the proposal of the Civil Aviation Organization and the confirmation made by the Foreign Ministry, is authorized to approve and proceed for the enforcement of the technical recommendations, resolutions, decisions, tables, rules, and regulations, as well as the amendments, additions, annexes, and standards of the Convention on International Civil Aviation (Chicago Convention of 1944) which were or are adopted by the International Civil Aviation Organization or its associated and affiliated bodies, providing that they are not inconsistent with the general principles of the Convention'.

10 Anna Masutti (Editor) and Pablo Mendes de Leon (Editor), Elgar Concise Encyclopedia of Aviation Law, Edward Elgar Publishing, 2023, at 'Aircraft Operator Certificate, Terminology, page 32'.

In aviation law of Iran, the Directive of the CAA on ‘Commercial Air Transport (CAT) Establishment’ (Directive No. 3140) differentiates between the AOL and the AOC. The Directive defines the AOC as a certificate issued by the standard department; the applicant can obtain this certificate if he complies with operational standards. The AOL is defined by the Directive as a document issued with the approval of the HCCA to the applicant for commencement of commercial activity, after the issuance of business confirmation, the AOC, and security confirmation; the AOL will remain valid as long as the business and security confirmations and the AOC maintain their validity.

It may be concluded that, based on Directive No. 3140, the AOC is considered as a condition precedent for the AOL. If all other conditions are satisfied, you will receive the AOL after obtaining the AOC.

1.5. Regulations for implementation of the Act

Article (22) of the Act provides that *‘regulations for implementation of the present Act which include the provisions relating to the flight of Iranian and foreign civil aircraft- securing the safety of flight of aircraft- airports- registration and nationality of aircraft- airworthiness of aircraft- certificates of aviation technical experts- institutions for the instruction and training of aviation technical experts- factories and maintenance organizations for aviation- air transportation- air accidents- aeronautical telecommunications- and the cases of temporary suspension or revocation of any issued permit, certificate or license or detention of violating aircraft shall be prepared by the Civil Aviation Organization and put into force following they are approved by the Board of Ministers’.*

However, the aviation law of Iran is governed partially by some regulations of the Board of Ministers which have been enacted with reference to other provisions such as Article (138) of the Constitution of Iran. *‘The Regulation for the Supervision on Provision of Non-Military Air Navigation Services’* has been enacted with reference to the Constitution of Iran.

1.6. Powers and duties of the pilot-in-command

One interesting aspect of the Act relates to article (32) which states that *‘when an offense or crime is committed on board an aircraft flying over Iran or on board an Iranian aircraft flying abroad, the pilot-in-command of the aircraft, as long as the intervention of the competent officers becomes possible, shall according to the provisions of the Penal Procedures Act carry out preliminary inspections and inquiries and collect and secure proofs and evidence of the offense or crime, and, in case of necessity, may temporarily arrest suspects, examine passengers and crew, and seize objects which may be evidence of the offense or crime.’*

For the purpose of this article and for the inspection of offenses and crimes and preliminary inquiries, the pilot-in-command of an aircraft is to act as a Constable of the Judiciary and is vested with all the duties assigned to a Police Commissioner according to Chapter II of the Penal Procedure Act’.

It seems that in the light of ‘Crew Resource Management (CRM)’ thoughts, this article should be interpreted in a narrow sense. All offenses or crimes committed or about to be committed which do not affect the safety of the flight or its inhabitants and the third parties, the pilot-in-command, has no authority over.¹¹

It should be noted that on the basis of articles 1 and 6 of *‘the Convention on Offences and Certain Other Acts Committed on Board Aircraft’*, signed at Tokyo, on 14 September 1963 (known as the Tokyo Convention), the aircraft commander may, when he has reasonable grounds to believe that a person has committed, or is about to commit, on board the aircraft, an act which, whether or not it is offence, may or do jeopardize the safety of the aircraft or of persons or property therein or which jeopardize good order and discipline on board, impose upon such person reasonable measures including restraint which are necessary: a) to protect the safety of the aircraft, or of persons or property therein; or b) to maintain good order and discipline on board; or c) to enable him to deliver such person to competent authorities or to disembark him in accordance the provisions of this Chapter (i.e. Powers of the Aircraft Commander).

¹¹ For more information regarding the powers and duties of an aircraft commander, see: Mag. Angelika Kronlachener, *The Legal Status of the Pilot-in-Command*, Doctoral thesis submitted to the Johannes Kepler University Linz, June 2022.

1.7. Special procedural provision

An important portion of the Act relates to the penal law. Article (35) of the Act specifies that *'the offenses and crimes mentioned in the present Act shall be dealt with immediately and without consideration of turn both in penal stages and in competent courts.'*

2. Conclusion

Due to the dynamic feature of the aviation industry, the authors strongly believe the Act needs to be modernized or even replaced by a new and comprehensive act to serve all the needs of the aviation industry, its players and users.¹²

Undoubtedly, such an act should be safety-oriented, and this mentality takes priority over all other aspects and abstract concepts including but not limited to the freedom, equality, fairness, and justice.¹³ To put it another way, those aspects and abstract concepts are valid, provided that they conform or adhere to *'the positive safety culture'*¹⁴ and do not decrease the commercial aviation safety value chain.

The idea of enacting a new-fashioned act for civil aviation in Iran, is something that has been recognized by the legislature in *'the Act for Delegation of the Powers and Duties of the High Council of Civil Aviation'*, enacted on 18 March 1981.

12 One of the notable examples that tells us the aviation industry has a dynamic feature could be found in the recent action adopted by 'the International Air Transport Association (IATA)' concerning the 'Statement of Principles and Best Practices Regarding Aircraft Operational Data (AOD)'. Actually, as the former chair of the executive board of Lufthansa Technik, 'Johannes Bussmann', said "new aircraft types enable operational data to be transmitted in encrypted form to the manufacturer, which then ultimately has the power to decide how that data is used. In this digital-knowledge monopoly, aircraft operators no longer will be able to acquire their own operational data easily; independent, free of charge, and unencrypted". (See: Jonathan M. Berger, Data Ownership Panel Discussion, IATA Maintenance Cost Conference, September 2019, Athens, Greece). It is noteworthy that according to article (32) of the Civil Code of Iran, 'all products and appurtenances of property, whether movable or immovable, produced naturally or as the result of exploitation, are the property of the owner'.

13 For further information regarding the difference between the aviation safety and the administration of justice, see: Francesca Pellegrino, *The Just Culture Principles in Aviation Law: Towards a Safety-Oriented Approach*, Springer, 2019, page 15.

14 Information regarding the concept of 'safety culture' or 'positive safety culture' can be found in the famous academic model articulated by James Reason in his book: *'Managing the Risks of Organizational Accidents'*, first published in 1997 by Ashgate Publishing. Also, for an institutional model that is tailored to suit Singapore's operating context, see: *'Handbook on Aviation Safety Culture'*, Developed by the Civil Aviation Authority of Singapore (CAAS) and the Royal Netherlands Aerospace Center (NLR), 2024.

Eu Sanctions Against Russia in the Aviation Industry

Sergi Giménez*

Abstract

The backlash generated by the armed conflict in Ukraine has led to the adoption of wide-ranging international sanctions measures against Russia and Belarus. Building upon the sanctions initially imposed in 2012 for Belarus and 2014 for Russia, since February 2022 the European Union has issued successive packages of additional measures. This note summarizes the main measures from the point of view of their actual impact on the functioning and operations of the aviation sector, leaving aside restrictions on other industries or products (dual-use equipment, energy sector, etc.). After analysing some general aspects of the sanctioning regime, the specific measures that have an impact on the aeronautical industry are presented.

1. Introduction

The decision of the Russian Federation to recognize the Donetsk and Luhansk “oblasts” as independent republics of Ukraine, and the subsequent invasion of Ukraine by Russian armed forces with the support of Belarus in early 2022, generated widespread rejection in Western countries. In addition to administrative measures and statements of condemnation from many different quarters, non-governmental bodies such as UEFA, FIFA, IIHF, IHF, Euroleague Basketball and many others adopted agreements to exclude Russian and Belarusian entities or individuals from their respective activities.

Despite the duration and growing escalation of the conflict, to date the measures adopted by various states and international organizations have been limited to the imposition of sanctions and restrictions, mainly of an economic nature, aimed at individuals and entities close to Russian and Belarusian circles of power¹. In the case of the European Union, these have taken the form of various packages of sanctioning measures, initially published in the Official Journal of the European Union on 23 February 2022², with successive extensions and modifications. It is worth recalling that the sanctions adopted in 2022 were not strictly new, but rather extended restrictions agreed in 2014 on the occasion of the Russian annexation of Crimea and others, from 2012, derived from the actions of the Belarusian government. On the basis of the existing sanctions, the EU has built from 2022 onwards a much broader and more complex framework, which is certainly difficult to manage in actual practice.³

The practical effects of the sanctioning measures have been questioned from various quarters, either because they are considered too weak, because they are perceived to lack effectiveness or because they unfairly affect people outside the conflict - the arguments are varied and naturally depend to a large extent on political and ideological positions. In these lines, we will try to summarize the main sanctioning measures from the point of view of their effective transcendence for the functioning and operations of the aeronautical sector. To do so, it will first be necessary to make a brief reference to the general aspects of the restrictions imposed (such as their territorial and personal scope of application, the information and liability obligations imposed on the addressees, the sanctioning regime in the event of non-compliance, etc.) and then to describe those specific measures likely to have an impact on the industry.

* Partner Augusta Abogados / Associate Lecturer of Private International Law at the Universitat Pompeu Fabra in Barcelona.

1 As is well known, some states provide various forms of military assistance to Ukraine. In this note we will not analyze these issues but confine ourselves to the legal measures taken by the EU.

2 OJEU L 42-I of 23/02/2022, which contained a first package consisting of a series of CFSP Council Decisions, Council Regulations and Implementing Regulations.

3 A useful tool for an overview of the EU sanctioning framework is the “EU Sanctions Map” published by the European Commission and freely accessible at www.sanctionsmap.eu.

It should be stressed that the authorities continue to adapt and amend existing sanctions quite frequently⁴. This prevents us from going into maximum detail in explaining some sanctions and we must limit ourselves to a more generic description to reduce the risk of these explanations becoming obsolete as soon as they come to light⁵. For this reason, operators must maintain constant vigilance to ensure compliance with this area of law⁶.

Although the sanctioning regime imposed by Community bodies is reflected in a multitude of Regulations, Decisions, Communications and other instruments, the main ones - in chronological order - for the purposes of this note are the following, as they make up the “skeleton” of most restrictive measures:

- Council Regulation (EC) No 765/2006 of 18 May 2006 concerning restrictive measures in view of the situation in Belarus and the involvement of Belarus in the Russian aggression against Ukraine⁷ (as subsequently amended)
- Council Regulation (EU) 208/2014 of 5 March 2014 concerning restrictive measures directed against certain persons, entities and bodies in view of the situation in Ukraine⁸ (as subsequently amended)
- Council Regulation (EU) 269/2014 of 17 March 2014 concerning restrictive measures in respect of actions undermining or threatening the territorial integrity, sovereignty and independence of Ukraine⁹ (as subsequently amended)
- Council Regulation (EU) 833/2014 of 31 July 2014 concerning restrictive measures motivated by actions of Russia destabilising the situation in Ukraine¹⁰ (and subsequent amendments)
- Council Regulation (EU) 2022/263 of 23 February 2022 concerning restrictive measures in response to the illegal recognition, occupation or annexation by the Russian Federation of certain areas of Ukraine not under the control of the Government¹¹ (and subsequent amendments)
- Directive (EU) 2024/1226 of the European Parliament and of the Council of 24 April 2024 on the definition of criminal offences and sanctions for breaches of Union restrictive measures, and amending Directive (EU) 2018/1673¹²
- Council Regulation (EU) 2024/1485 of 27 May 2024 concerning restrictive measures in view of the situation in Russia¹³

4 By way of illustration: Regulation (EU) 269/2014, one of the texts containing the main sanctioning measures on the freezing of funds, has been amended 103 (!!) times since its publication on 17 March 2014, seven of them between January and June 2024. Another of the main rules, Regulation (EU) 833/2014, has been amended 34 times since February 2022.

5 This note has been drafted taking into account the legislative status as of 15 April 2025.

6 The European governments devote resources to assist their citizens in their compliance efforts. For instance, the Spanish Ministry of Foreign Affairs ([Sanciones internacionales](#)) and the Spanish Ministry of Economy, Trade and Enterprise ([Ministerio de Economía, Comercio y Empresa - Sanciones internacionales](#)) provide information on their websites that is regularly updated. Similar efforts have been made by other Member States such as France ([Sanctions against Russia and Belarus - Ministry for Europe and Foreign Affairs](#)), Germany ([BMWK - Fragen und Antworten zu Russland-Sanktionen](#)), Netherlands ([Implementation of sanctions against Russia and Belarus by the Netherlands | War in Ukraine | Government.nl](#)), etc. However, it is advisable to have specialized tools to ensure compliance.

7 OJEC L 134 of 20 May 2006

8 OJEU L 66 of 6 March 2014

9 OJEU L 78 of 17 March 2014

10 OJEU L 229 of 31 July 2024

11 OJEU L 42-I of 23 February 2022

12 OJEU L-2024-80597 of 24 April 2024

13 OJEU L of 27 May 2024

2. General Issues

2.1. Territorial scope of application - regulated entities

There is often confusion between the territories in which the sanctioning measures have effect and the territories to which some of them refer¹⁴. Although in recent times international legal scholars and practitioners have observed a tendency among governments to issue rules with extraterritorial reach¹⁵, the fact is that Community bodies - as a general rule - lack jurisdiction to issue measures that have effects, at least directly, beyond the territories of their Member States. The application and interpretation of Community legislation is the responsibility of the authorities of the Member States, and especially of their courts, but this legislation does not bind extra-Community authorities unless there are specific agreements in this respect.

However, in the case of sanctions against Russia, the Community legislator seeks to ensure that they have as wide a scope as possible: as a general rule, restrictive measures adopted by Community bodies apply¹⁶

- a. within the territory of the EU (including its airspace),
- b. on board any aircraft or any vessel under the jurisdiction of a Member State,
- c. to any person, whether inside or outside the territory of the EU, who is a national of a Member State,
- d. To any legal person, entity or body, whether located inside or outside the territory of the EU, which is incorporated or constituted under the law of a Member State, and
- e. to any legal person, entity or body in respect of any business done in whole or in part within the EU.

Thus, all public entities, financial institutions, companies and individuals who are EU citizens, are nationals of a Member State or simply conduct business on EU territory are subject to EU sanctioning rules. In case of infringement of the restrictive measures imposed, they may be subject to sanctions.

As a general rule Community rules on sanctions prohibit persons bound by them from knowingly and intentionally participating in actions the object or effect of which is to circumvent the restrictive measures. This includes participation in such activities without deliberately pursuing that object or effect but being aware that such participation could have that object or effect and accepting that possibility¹⁷. Triangulation operations, through the sale of restricted goods or services to companies based in countries which are not subject to sanctions, are also subject to the sanctions regime when the seller knows that the buyer is a mere intermediary and that the goods or services will be re-dispatched to persons established in States subject to restrictive measures.

However, aware of the complexity of the legislation, the Community legislator has provided that operators are exempted from liability in the event of misapplication of the restrictions. In particular, the freezing of funds and economic resources or the refusal to make funds or economic resources available, carried out in good faith on the basis that such action is in accordance with Community provisions, does not give rise to liability of any kind on the part of the natural or legal person, entity or body implementing it, nor its directors or employees, unless it is proved that the funds and economic resources were frozen or withheld in a negligent manner¹⁸. On the other hand, actions taken by the targeted persons

14 An introductory and illustrative explanation of the issue can be found in Máximo Santos Miranda, "Sanciones internacionales: implicaciones para la internacionalización de las empresas", *Estrategia Financiera* magazine no. 331, Sección Comercio Exterior, October 2015, Ed.

15 As an illustration, the General Data Protection Regulation 2016/679 introduced extraterritoriality rules for its application: Article 3(2) provides for cases in which controllers or processors of personal data located outside the EU may be subject to the rules set out in the GDPR, to the monitoring of processing by EU Member States' authorities and to its sanctioning regime. Recently, the extraterritorial reach of Regulation (EU) 2024/1689 ("AI Act") has also been widely discussed.

16 See Art. 17 of Regulation 269/2014 and Art. 13 of Regulation 833/2014.

17 See Art. 9 of Regulation 269/2014, Art. 12 of Regulation 2022/833, Art. 1c of Regulation 765/2006.

18 See for example Art. 10 of Regulation 208/2014.

and entities will not give rise to liability on their part if they did not know, and had no reasonable cause to suspect, that their actions would infringe the measures provided for by the sanctioning legislation.¹⁹

In this way, it is intended to protect operators against possible claims by affected persons. Of course, it will be necessary to determine liability on a case-by-case basis, as the level of diligence will depend on the nature of each operator (for example, it could be argued that the diligence and knowledge required of a financial institution is higher than that required of an SME that deals with Russia on an occasional basis only).

2.2. Persons affected by the restrictions - blacklists

A large number of the various measures adopted are generally directed against persons and entities expressly mentioned in the annexes to Community Decisions and Regulations ("blacklists"). These are mainly the following categories of persons:²⁰

- a. natural persons responsible for actions or policies which undermine or threaten the territorial integrity, sovereignty and independence of Ukraine, or stability or security in Ukraine, or who actively support or implement such actions or policies, or who obstruct the work of international organizations in Ukraine,
- b. legal persons, entities or bodies supporting, materially or financially, actions that undermine or threaten the territorial integrity, sovereignty and independence of Ukraine,
- c. legal persons, entities or bodies in Crimea or Sevastopol whose ownership has been transferred in violation of Ukrainian law, or of legal persons, entities or bodies that have benefited from such transfer of ownership,
- d. natural or legal persons, entities or bodies actively supporting, materially or financially, or benefiting from, Russian politicians responsible for the annexation of Crimea or the destabilisation of Eastern Ukraine, and
- e. natural or legal persons, entities or bodies conducting transactions with separatist groups in the Donbass region;
- f. natural or legal persons, entities or bodies supporting, materially or financially, the Government of the Russian Federation, or benefiting from the Government of the Russian Federation;
- g. leading entrepreneurs operating in Russia and their immediate family members, or other natural persons benefiting from them, or entrepreneurs, legal persons, entities or bodies involved in economic sectors that provide a substantial source of income to the Government of the Russian Federation, which is responsible for the annexation of Crimea and the destabilisation of Ukraine;
- h. natural or legal persons, entities or bodies facilitating infringements of the prohibition on circumvention of sanctioning provisions issued by the EU or otherwise significantly circumventing such provisions;
- i. legal persons, entities or bodies operating in the Russian IT sector with a licence issued by the Centre for Authorisation, Certification and Protection of State Secrets of the Federal Security Service or a 'weapons and military equipment' licence issued by the Russian Ministry of Industry and Trade,
- j. entities established in Russia, previously owned or controlled by entities established in the Union, whose ownership or control has been compulsorily transferred by the Government of the Russian Federation by legislative or regulatory acts, other legislative instruments or any other measures of the Russian public authorities, or natural or legal persons, entities or bodies which have benefited from such transfer, and natural persons who have been appointed to the governing bodies of such entities in Russia without the consent of the Union entities to which they were previously owned or controlled;
- k. natural or legal persons, entities or bodies associated with all of the above.

¹⁹ See Art. 9 of Regulation 2022/263 and Art. 10 of Regulation 2022/833 - the wording of the regulation sets a high standard, which the companies concerned must be able to prove if they are challenged. This makes it advisable to establish internal procedures and due diligence systems that make it possible to prove this lack of knowledge.

²⁰ See Art. 3.1 of Regulation (EU) 269/2014.

As can be seen, the description of the categories of persons targeted by the sanctions is very broad and covers a huge number of possible scenarios. But it should be noted that, beyond the persons specifically named in the lists, there is a generic prohibition on any transaction with legal persons, entities or bodies established in Russia that are subject to public control or are more than 50% publicly owned, or in which Russia, its Government or the Central Bank of Russia has the right to participate in the profits, or with which Russia, its Government or the Central Bank of Russia has another substantial economic relationship; the prohibition applies even to legal entities established outside the EU which are more than 50% owned by specially designated Russian public entities.²¹

As a general rule, commercial dealings with blacklisted persons are not permitted, without prejudice to the exceptions provided for in the legislation itself. The Community authorities regularly update the lists of persons included and excluded in the different categories, and it is therefore necessary to review these lists on an ongoing basis.²²

It is understandable that people who consider themselves wrongly blacklisted have turned to the Community institutions to be removed from the blacklists²³. This has generated an abundant body of case law. Of particular note, given its recent date, is the judgment of the General Court of 29 May 2024²⁴ handed down in the action for annulment brought by Belavia Belarusian Airlines against the acts of the Council of the European Union by which this company was included in 2021 on the list of persons and entities subject to restrictive measures in view of the situation in Belarus. This case has enabled the Court to interpret for the first time the criterion for inclusion laid down in Decision 2012/642 relating to the organization of activities of the Lukashenko regime which facilitate the illegal crossing of the EU's external borders.

- According to the General Court, *“the Council had a sufficiently detailed, precise and consistent body of evidence to establish [...] that third-country nationals intending to cross the external borders of the European Union without complying with the relevant legislation travelled to Minsk on flights operated by the applicant from Lebanon, the United Arab Emirates and Türkiye”, and that, “in order to facilitate this, the applicant expanded the number of flights on existing routes and that local tour operators acted as intermediaries in selling the applicant’s tickets to those persons, thereby helping the applicant to keep a low profile”.*
- Belavia argued that its flights to Lebanon, the United Arab Emirates and Turkey were not chartered by the Belarusian State and that its own transport operations were profitable. However, according to the General Court, *“it is apparent from the evidence in the file that the Lukashenko regime organized the transport of third-country nationals to Belarus by air, not by chartering flights but by supporting the issuing of visas for Belarus, that the effect of that measure was to increase demand for air transport services to Belarus and that some airlines profited from the commercial operation of flights meeting that demand. It follows that the applicant’s allegations that its flights to Lebanon, the United Arab Emirates and Türkiye were not chartered by the Belarusian State and its own transport operations were profitable – assuming those allegations to be established – are not capable of showing that those flights and operations were not part of the activities of the Lukashenko regime facilitating*

21 See Article 5a of Regulation 2022/833 and its Annex XIX.

22 In Spain, the Centralised Body for the Prevention of Money Laundering and Terrorism Financing, created by Order ECC/2402/2015 of 11 November 2015 (BOE no. 276 of 16 November 2015), is the body of the College of Registrars in charge of coordinating the work of property, commercial and movable property registrars to give effect to sanctions, for example by seizing assets registered in favour of blacklisted persons.

23 The judgment of the Court of Justice (Grand Chamber) of 18 July 2013 in Case C-584/10 P (ECLI:EU:C:2013:518) ‘Kadi’ established a number of criteria designed to protect fundamental rights against possible interference by restrictive measures directed against individuals. The CJEU specifically stated that *“Article 52(1) of the Charter nevertheless allows limitations on the exercise of the rights enshrined in the Charter, subject to the conditions that the limitation concerned respects the essence of the fundamental right in question and, subject to the principle of proportionality, that it is necessary and genuinely meets objectives of general interest recognised by the European Union [...]”*. Indeed, the first judgment delivered by the General Court (Grand Chamber) following the adoption of the first package of measures in 2022 again deals with the compatibility of the measures adopted with rights such as the rights of defence, freedom of expression and information, freedom to conduct a business or the principle of non-discrimination on grounds of nationality (judgment of 27 July 2022 in Case T-125/22 (ECLI:EU:T:2022:483) ‘RT France’, analysed by Alba Ruiz Ortiz, *“El Tribunal General de la Unión Europea, en Gran Sala, apoya a Ucrania, demostrando una resistente unión de derecho”*, Diario La Ley nº 10189 de 15 de diciembre de 2022).

24 Judgment of the General Court (Ninth Chamber) of 29 May 2024 in Case T-116/2022 (ECLI: EU:T:2024:334) Belavia Belarusian Airlines v Council of the European Union.

the illegal crossing of the external borders of the European Union". In other words, the airline did not prove that those flights and operations did not form part of the Lukashenko regime's activities facilitating the illegal crossing of the Union's external borders.

- The fact that Belavia may not have intentionally infringed the restrictions is irrelevant to the General Court, because the restrictive measures do not constitute punitive measures which require proof of an intentional element on the part of the perpetrator of the acts or activities in question: *"the Council did not make an error of assessment in finding that the applicant is the State-owned national flag carrier airline, that President Lukashenko promised that his administration would provide all possible support to the applicant after the European Union decided to introduce a prohibition on the overflight of EU airspace and on access to EU airports by all Belarusian air carriers, and that, to that end, he agreed with the Russian President Vladimir Putin on planning the opening of new airline routes for the applicant"*.

In the also recent *"Ismailova" judgment, delivered on 8 May 2024*²⁵, the General Court of the EU ruled for the first time in a case involving the use of complex corporate structures to circumvent fund freezing measures directed at persons subject to restrictive measures. The applicant, the sister of a person listed in Annex I to Regulation 269/2014, was also listed in that Annex following investigations by the German police, who considered her to be an "associated person" of her brother. According to the Court, the concept of "association" refers to any natural or legal person, or any entity, having a link - beyond the family relationship - with a person who is the subject of restrictive measures. The analysis must be carried out on a case-by-case basis, and in the *"Ismailova"* case the Court found that there were common interests between sister and brother and that the fact that several legal entities are involved in the management of assets does not have the consequence that the link between two natural persons (beneficiaries of such legal entities) is hypothetical or remote. This eliminates the artifice that can be created by interposed legal persons.²⁶

2.3. Penalty regime

Finally, it should be noted that Community legislation stipulates that it is up to the Member States to regulate the system of penalties applicable to possible infringements of restrictive measures.

However, in order to avoid a disparity of national criteria and to ensure effective enforcement of restrictive measures, Directive (EU) 2024/1226 was published in April 2024²⁷. This Directive establishes minimum rules regarding the definition of criminal offences and penalties for infringement of such EU measures and sets out a broad catalogue of conducts that will constitute a criminal offence in all Member States when committed intentionally or with serious negligence and exceeding certain financial thresholds²⁸. Common criminal penalties are also determined: in addition to other possible ancillary sanctions, prison sentences ranging from a minimum of one year to more than five years are foreseen; the declared objective of the Community legislator is that the sanctions should have a clear deterrent effect. Additionally, and in view of the wide range of limitation periods provided for in national legislation, the Directive lays down a common minimum period of five years for the most serious offences and for the enforcement of prison sentences.

25 Judgment of the General Court of the EU of 8 May 2024 in Case T-234/22 (ECLI:EU:T:2024:287) *"Ismailova"*. For a detailed analysis of the judgment, see Diana Elena Nacea, "Note on Judgment T-234/22 of the General Court of the European Union, *Ismailova v. Council*, concerning the principle of association and the use of front companies as a means of evasion of restrictive measures", *Diario La Ley* n° 10540, Tribuna Section, 5 July 2024.

26 The Court used this judgment to recall that the purpose of the restrictive measures is not to sanction certain persons for their links to the situation in Ukraine, but to impose economic sanctions on Russia in order to increase the cost of its actions. See also the judgment of the CJEU of 13 September 2018, delivered in case T-715/14 (ECLI:EU:T:2018:544) *"Rosneft"* and subsequent related cases.

27 Directive (EU) 2024/1226 of the European Parliament and of the Council of 24 April 2024 on the definition of criminal offences and penalties for the violation of Union restrictive measures and amending Directive (EU) 2018/1673, OJEU of 29 April 2024.

28 The generic threshold is only 10,000 Euro, which is quite low considering the amounts normally handled in the aeronautical industry.

Member States have until 20 May 2025 to implement this latest Directive²⁹. However, this does not mean that in the meantime there is a legal vacuum in domestic legislations. For instance, in Spain the sanctioning regime is dispersed among various regulations, such as Law 10/2010, on the prevention of money laundering (and its implementing regulations), Organic Law 12/1995, on the repression of smuggling, and Law 21/2003, on aviation security. Without prejudice to the adaptation to the sanctioning regime determined by the new EU Directive, the sanctions foreseen in these internal rules can be substantial. In the case of companies, even the possible personal liability of their directors and managers is foreseen³⁰. It is therefore highly advisable to analyse in detail the implications of transactions that may be considered to be suspected of being included among the restrictions envisaged by the Community legislator.

3. Activities with Restrictions Affecting the Aviation Sector

In the following paragraphs we shall offer a brief description of some of the main activities restricted by Community legislation that have a particular impact on the aviation sector, whether commercial or private. The wide scope of the restrictions adopted by the European authorities necessarily implies that there are many others that could affect this industry, without being specifically aimed at it. For this reason, no “one fits all” advice can be given; rather, it is essential to analyse each transaction on a case-by-case basis.

3.1. Tourist activities in Donetsk and Luhansk regions

Already in the first package of measures adopted in February 2022 the EU Council agreed to prohibit the provision of services directly related to tourism activities in the areas not controlled by the Ukrainian government (the regions of Donetsk and Luhansk) by nationals of Member States or from the territory of Member States, or using vessels or aircraft under the jurisdiction of Member States³¹. As a result, European travel agencies cannot promote these areas as tourist destinations or provide reservation services for flights, hotel accommodation, etc.

3.2. Business activities in Donetsk and Luhansk regions

The first package of measures aimed primarily at restricting business and commercial activities in the non-government-controlled areas of Ukraine in the oblasts of Donetsk, Kherson, Luhansk and Zaporizhzhia. Among other activities, the acquisition of shares, the creation of companies or the granting of financing to entities located in these territories was prohibited³². However, from the outset, the EU legislator also imposed restrictions on the sale, supply, transfer and export of a long list of products, including many related to transport and telecommunications³³ (e.g. all types of engines, turbojets, turboprop engines, etc.). These initial restrictions were extended in successive packages to a wide range of products and services to and from the whole territory of the Russian Federation and Belarus.

3.3. Operational restrictions

One of the measures that received significant media attention was the announcement at the end of February 2022 by the European Union to ban Russian aircraft from landing, taking off and flying over EU territory³⁴. The United States of America, Canada, the United Kingdom and other countries adopted similar measures. Russia responded by closing its airspace to 36 countries, including all EU countries.

29 For now, only the German Government seems to have put forward a draft bill to amend its Foreign Trade and Payments Act, in December 2024 (see the press release published by the German Parliament on 3 December 2024 under [Deutscher Bundestag - Außenwirtschaftsgesetz wird geändert](#)).

30 Liability that the recent Directive 2024/1226 extends to “any person who has a leading position within the legal person concerned”, based on a power of representation, an authority to take decisions or an authority to exercise control within the legal person (Art. 6.1). As can be seen, the scope of liability is considerably wider than that of formal administrators or proxies.

31 Art. 9 of Council Decision (CFSP) 2022/266 of 23 February 2022 and Art. 6 of Regulation (EU) 2022/263.

32 See Art. 3 of Regulation 2022/263.

33 See Art. 4 of Regulation 2022/263, and in particular Annex II of the same Regulation.

34 Art. 1.2 of Council Decision (CFSP) 2022/335 of 28 February 2022 and Art. 1.2 of Regulation (EU) 2022/334. Also Art. 3d of Regulation 2022/833.

This restriction on Russian air operators was formalised on 28 February 2022 and is still in force. Prior to this, a similar restriction had been imposed on aircraft operated by Belarusian air carriers in June 2021³⁵. Thus, aircraft operated by Russian and Belarusian air carriers, including those marketed under code-sharing or capacity reservation agreements, aircraft registered in Russia or aircraft not registered in Russia but owned, chartered or otherwise controlled by Russian natural or legal persons, entities or bodies are prohibited from landing on, taking off from or flying over the territory of the EU. It was subsequently clarified that this prohibition also applies to any other aircraft used for a non-scheduled flight and for which a Russian individual or legal person, entity or body is in a position to effectively determine the place or time of take-off or landing.

However, certain transactions are exempted:

- for aircraft with no more than four seats and a maximum take-off weight of not more than 2,000 kg, when used for private flights other than business flights performed within the territory and airspace of the EU for recreational purposes, or for training purposes for the purpose of obtaining private pilot licences or accreditations related to training providers in the Union;
- in the event of emergency landings or emergency overflights, as required by international aviation regulations;
- when the competent authorities authorise an aircraft to land on, take off from or overfly the territory of the EU if those competent authorities have previously determined that the landing, take off or overflight is necessary for humanitarian purposes or for any other purpose consistent with the objectives of the sanctioning legislation.

At the request of the authorities, in the case of non-scheduled flights, aircraft operators are also required to provide all information necessary to verify compliance with this prohibition before landing on, taking off from or flying over EU territory. Such information may include:

- credible and satisfactory information regarding the beneficial ownership of the aircraft and, where applicable, the natural or legal person, entity or body chartering the aircraft, and
- a general declaration, passenger list and other official documents showing the full names, dates and places of birth and nationalities of all passengers and crew members, where there are reasonable grounds to suspect that circumvention of the ban is being attempted, based on factors such as the route and origin of the flight, or information about the operator concerned.

3.4. Restrictions on the sale of aeronautical products and the provision of aeronautical services

Measures issued in 2014 already prohibited the sale, supply, transfer or export, directly or indirectly, to Russia of arms and related materiel of all types, including weapons and ammunition, military vehicles and military and paramilitary equipment, and spare parts for all these products. A similar measure had been put in place in 2012 with regard to arms sales to Belarus. The purchase, supply, transfer or export, directly or indirectly, of dual-use goods and technology to Russia for military use or to any military end-user in Russia has also been banned since 2014. This ban was further extended to listed persons and entities in Russia.

However, certain sales of dual-use items and technology for the aeronautics and space industry, for non-military use and to non-military end-users, were initially exempted from this ban. This exemption ended with the successive sanction packages adopted by the EU legislator after the invasion of Ukraine. Thus, the activities listed below are prohibited if

³⁵ See Art. 8b of Regulation 765/2006.

they are directly or indirectly intended for any person, entity or body in, or for use in, Russia³⁶, unless the appropriate authorisation is obtained from the competent authorities in the Member States:

- Sell, supply, transfer or export, directly or indirectly, products and technology suitable for use in the aviation or space industry listed in Annex XI to Regulation 833/2014, whether or not originating in the EU;
- provide insurance and reinsurance, directly or indirectly, in relation to such products and technology;
- the overhaul, repair, inspection, replacement, modification or rectification of defects of an aircraft or component, other than pre-flight inspection, relating to the above products and technology;
- provide technical assistance, brokering services or other services related to such products and technology and the provision, manufacture, maintenance and use thereof;
- provide financing or financial assistance related to such products and technology for any sale, supply, transfer or export of such products and technology, or provide related technical assistance, brokering or other services;
- sell, license or otherwise transfer intellectual property rights or trade secrets, as well as grant rights of access or re-use of any material or information protected by intellectual property rights or which constitute trade secrets relating to such products and technology and to the supply, manufacture, maintenance and use of such products and technology.

To a more limited extent, similar restrictions on goods and technology suitable for use in the aviation or space industry were imposed in August 2023 on persons, entities or bodies located in or for use in Belarus³⁷. Beyond a generic description, it would exceed the scope of this note to provide an exhaustive list of all products whose trade is banned or restricted, as this is a subject that is constantly being reviewed and updated. The following list is merely an illustration of the fact that, among those whose sensitivity is apparent, there are other apparently “innocuous” products, but which, due to their use or destination, are subject to controls, even if they are not listed in the official lists of dual-use products or technology:

- airborne communication equipment, all aircraft inertial navigation systems and other avionics equipment;
- equipment specially designed for testing, inspecting or producing navigation and avionics equipment;
- software and technology for the development, production or use of navigation, airborne communication and other avionics products;
- aircraft engines (reciprocating or rotary internal combustion piston engines, electric motors) and aero gas turbine engines and specially designed components therefor;
- components of specially designed pressurised aircraft breathing apparatus specially designed for them;
- new rubber tyres, of a kind used on aircraft;
- brake discs and brake plates for use in aircraft;
- aircraft seats;
- other parts of aeroplanes, helicopters or unmanned aircraft.

³⁶ See Art. 3c of Regulation 833/2014.

³⁷ See Article 1sec. of Regulation 765/2006, as well as Annex XVII thereto.

3.5. Contractual safeguards - “no re-export” clause

Amendment No. 26 of Regulation (EU) 833/2014, adopted on 18 December 2023, introduced a significant novelty, the application of which has been in force since 20 March 2024.

As of the above date any agreement for the sale, purchase, supply, transfer or export of certain items to third countries must expressly include a clause prohibiting their re-export to Russia or their re-export for use in Russia³⁸. The aim of this provision is to combat circumvention of EU export bans and, more specifically, the situation where goods exported to third countries are re-exported to Russia. In addition, the contract must include “appropriate” measures and actions in the event of non-compliance by the counterparties³⁹.

Although EU law does not impose any specific wording for such clauses, in a document published on 22 February 2024⁴⁰ the European Commission provided detailed explanations and a model wording for a prohibition clause, as well as proposed measures for the enforcement of this clause, such as termination of the contract or payment of a penalty⁴¹.

This obligation applies to the export of goods or technology listed in Annexes XI, XX and XXXV of Regulation 833/2014, which, for the purposes of this note, include goods and technology suitable for use in the aviation or space industry, jet fuels and fuel additives. It also applies to products listed in Annex XL of the same Regulation as common high priority items, being a long list of products including electronic integrated circuits, apparatus for the reception, conversion, emission and transmission or regeneration of voice, image and other data, radio navigational equipment, bearings, parts of aeroplanes, helicopters or unmanned aircraft, instruments and apparatus for air or space navigation, etc.

As can be seen, the obligations imposed by the Regulation affect the aviation and space industry very directly, as the items and technologies in Annex XI refer extensively to aircraft and spacecraft and their parts and components, and Annex XX refers to a wide range of products and fuel additives, which also happen to be the fuel for aircraft and spacecraft. Annex XL includes a list of dual-use items and technology.

It will not be necessary to include the contractual clause described above when the export takes place with some of the partner countries listed in Annex VIII of the Regulation, which for the time being are the United States of America, Japan, United Kingdom, South Korea, Australia, Canada, New Zealand, Norway, Switzerland, Liechtenstein and Iceland.

The obligation to include the “no re-export to Russia” clause depends on the date of conclusion of the contract:

a. Contracts concluded before 19 December 2023:

Contracts concluded before this date benefitted from a transitional period of one year until 19 December 2024, or until the expiry of the contracts if earlier. However, for any execution of these contracts after 20 December 2024, operators must amend the contract to include the “no re-export to Russia” clause.

b. Contracts concluded on or after 19 December 2023:

Contracts concluded from 19 December 2023 onwards must contain a mandatory “no export to Russia” clause from 20 March 2024 onwards.

Article 12g of Regulation 833/2024 implies for practical purposes that, as of 20 March 2024, any agreement for the sale, supply, transfer or export of aircraft and aircraft fuel with a non-EU country must expressly provide for a clause prohibiting the re-export of the aircraft, as well as measures for the event of a breach of such a clause by one of the parties to the contract.

³⁸ V. Art. 12g of Regulation 833/2014.

³⁹ Under Regulation (EU) 2024/1745 of 24 June 2024, public contracts concluded by exporters with a public authority in a third country or with an international organization do not require the inclusion of this clause. However, this does not preclude exporters from notifying the authorities of their Member State of residence of the fact that they have concluded contracts benefiting from this exemption.

⁴⁰ At the time of writing, this Communication was last updated on 18 December 2024.

⁴¹ This document is freely accessible on the Commission’s website: [“No re-export to Russia” clause - European Commission \(europa.eu\)](https://ec.europa.eu/eu-exports-control-restriction/no-re-export-to-russia)

If an aircraft or aircraft component exported from the EU to a third country is re-exported to Russia, the competent authorities may consider that the EU exporter has failed to exercise due diligence and this constitutes a breach of the Regulation. If the EU exporter knowingly and intentionally omits such due diligence, he may be considered to be engaged in a circumvention scheme.

Many EU operators already included “no re-export” clauses in their contracts before 2023. However, Article 12g makes this practice a legal requirement for sensitive goods and is expected to act as a deterrent to non-EU operators redirecting EU-sanctioned goods to Russia, exposing them to contractual non-compliance.

In addition, in the event of non-compliance with the re-export prohibition clause by the counterparty, exporters must report this as soon as possible to the competent authority of the Member State where they are resident or established. According to the EU itself, where Member States have not set up a specific whistleblowing system, exporters can use the EU’s generic whistleblowing tool anonymously (<https://eusanctions.integrityline.com/>).

3.6. Travel documents

Finally, a brief mention should be made of the effects of the conflict in Ukraine on the EU-Russia visa and travel document agreements. A little over six months after the invasion, and in view of the deterioration of the situation, the Council of the European Union decided to suspend the visa facilitation agreement with the Russian Federation altogether as of 12 September 2022⁴². Moreover, at the end of the same year the EU legislator decided not to accept - except for some exceptional cases - any Russian travel document issued to persons residing in Russian-occupied regions or territories of Ukraine or in the breakaway territories of Georgia as a valid travel document for the purpose of issuing visas and crossing the external borders of the EU⁴³.

4. Conclusions

The EU sanctions imposed on Russia and Belarus in the aviation sector have a significant and complex impact, due to the strategic nature of this sector and its global interconnectedness. These measures have extended not only to a ban on flights operated by Russian or Belarusian airlines on EU territory, but also to more far-reaching restrictions, including on the export of aviation and space-related products and technologies, affecting both aircraft and their components.

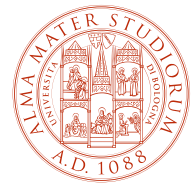
One of the main conclusions is the very wide range of activities affected by these sanctions. From a ban on tourist services in the conflict zones to trade restrictions in Russian-controlled regions, the scope of the sanctions measures extends to all commercial and aviation operations with Russian or Belarusian entities. This scope has also been complemented by the obligation to include contractual non-re-export clauses designed to prevent products exported to third countries from ending up in Russian hands, a mechanism that seeks to close off any possible avenues for evasion of sanctions.

In addition, the sanctioning regulations introduce liability for both natural and legal persons directly or indirectly involved in transactions with entities or persons subject to these restrictions. This includes not just commercial operators, but also financial institutions and manufacturers providing products or services to this sector. Failure to comply can result in serious consequences, including financial and criminal penalties, so operators must maintain constant vigilance to ensure that their transactions comply with the regulations.

Finally, while some exemptions are granted, such as for humanitarian operations or light recreational aircraft, the sanctions provide a very limited framework for any commercial or private aviation-related activity in Russia and Belarus. The implementation of these measures reflects a concerted effort by the EU and its allies to limit Russian access to critical technology and further isolate its economy in response to the invasion of Ukraine.

⁴² Council Decision (EU) 2022/1500 of 9 September 2022 (OJEU L 234 of 9 September 2022).

⁴³ Decision (EU) 2022/2512 of the Parliament and of the Council of 14 December 2022 (OJEU L 326 of 21 December 2022).



Space

The Feasibility of a Common EU Space Law: Legal Barriers, Political Will, Opportunities, and Challenges

Berfin Bediz Yildiz Keskin

Ordering the Infinite: A Conceptual Approach to Outer Space Regulation

Michael Hammer



The Feasibility of a Common Eu Space Law: legal barriers, political will, opportunities, and challenges

Berfin Bediz Yildiz Keskin*

Abstract

A common European Space Law has been a subject of ongoing discussion and consideration within the European Union's institutions. In recent years, the Russian invasion of Ukraine has once again brought the issue of a common European Space Law back into the spotlight. European institutions have re-evaluated the EU's independence and resilience in many areas, including space.

The proposed research holds importance as it addresses a timely and pressing issue at the intersection of policy, law, and technology. Understanding the feasibility of a common European Union space law and its implications for the European Union's position in space, as well as the legal adaptability of the European Union's lawmaking process to new technological developments, is critical for policymakers, legal scholars, and stakeholders in the space industry.

1. Introduction

The increasing importance of space domain has been recognized by legislators, leading to various international, regional, and national legislative measures being implemented. While the European Union (hereinafter EU) has established certain regulations and directives pertaining to the space sector and developed common space policies, space law mostly remains under the jurisdiction of national governments. The current legal framework does not provide the EU with sufficient competence to independently develop a common EU space law. However, concerns about sustainability, safety, and security, combined with economic opportunities, single market concerns, and the need to support a competitive EU space industry, underscore the necessity for such a framework and justify its adoption.

This paper will consist of seven sections. In the first section, the reader will be familiarized with the space activities of the EU and its Member States. The second section then will discuss the current regulatory framework governing space activities in the EU. After providing a general overview of international law, EU regulations, directives, and national laws governing EU space activities, the absence of a common EU space law will be acknowledged. In the third section, the need for a common EU space law will be further argued. The current political discussion at the EU level on the concept of common EU space law will be evaluated in the fourth section. The feasibility of a common EU space law will be discussed in the fifth section. The opportunities and challenges of this potential common EU space law will be discussed in the sixth and seventh sections, respectively.

This research paper aims to critically assess the ongoing efforts for the adoption of a common EU space law, considering the legal barriers and challenges, as well as the political will of Member States. Furthermore, it seeks to analyze the potential implications of the proposed common European space law for the European lawmaking process, including its capacity to adapt to and accommodate changes brought by new technological developments.

2. Current Space Activities Conducted by the EU and its Member States

Europe holds an important position as a global player in space. The EU owns and operates space assets such as the Galileo system for positioning, navigation, and timing (PNT), along with the Copernicus program for Earth observation,

* S.J.D. Candidate, Wake Forest University School of Law (North Carolina, U.S.); LL.M. Graduate, International Institute of Air and Space Law, Leiden University; Attorney at Law (Turkey).

and the European Geostationary Navigation Overlay Service (EGNOS) for safety-critical navigation services to aviation, maritime, and land-based users throughout the EU.¹ Recently, the EU initiated a new space program for the years 2021 to 2027, introducing two new security components: the Space Situational Awareness (SSA) program, which monitors space hazards, and the Governmental Satellite Communication (GOVSATCOM) program, which provides national authorities with access to secure satellite communications.² Additionally, the EU is preparing to launch a third constellation, the Union Security Connectivity Program (IRIS2), dedicated to secure communications.³ Although the European Space Agency (hereinafter ESA), an intergovernmental organization that conducts space activities, is an independent organization from the EU, the two organizations have very close ties.⁴ Additionally, individual Member States own and operate national space assets, including those dedicated to security and defense purposes.⁵

Space technologies are also increasingly used in many different areas of life, such as satellite communications, weather forecasting, navigation services, and even tele-education and tele-medicine. At EU level in particular, space technologies support the implementation of public policies, decision-making processes, and actions undertaken by both the EU and its Member States, facilitate the operations of commercial enterprises and improve the daily lives of all EU citizens. Furthermore, space technologies play an important role in security and defense, increasing resilience.

Space-based services create prosperity for countries, businesses, citizens, and policymakers, leading the entire world to a new space economy. With the commercialization of space activities and advances in space technologies that reduce costs, such as reusable launchers and micro-launchers, space activities have become more attractive. More and more players want to get involved in such an enticing venture, making space a contested area.

However, space activities raise several concerns. First, there are inherent safety risks associated with space activities. These risks include technical incidents, accidents, and natural hazards. In addition, space actors have the ability to conduct deliberately hostile activities through counter-space capabilities. For example, they can “[i]ntentionally disrupt, degrade, destroy, deceive, or deny the use of space systems, and to inspect, manipulate, eavesdrop, or intercept corresponding data as well as deny access or freedom of movement in the space domain.”⁶ Counterspace capabilities exhibit diverse forms, including kinetic measures directed to space assets or ground infrastructure, as exemplified by anti-satellite weapons, and directed energy, such as electronic warfare and lasers to dazzle satellites, damage their on-board electronic systems, or disrupt their signals.⁷ Countries like Russia and China have launched anti-satellite missiles to destroy their own satellites.⁸ In 2021, Russia tested an anti-satellite weapon against its own satellite, resulting in a large amount of debris that poses a huge risk to the safety of other operational space assets.⁹

- 1 European Court of Auditors, Special Report, “EU space programmes Galileo and Copernicus: services launched, but the uptake needs a further boost, 2021, at 8, available at: https://www.eca.europa.eu/Lists/ECADocuments/SR21_07/SR_EUs-space-assets_EN.pdf, (last accessed October 20th 2024).
- 2 EU Regulation (EU) 2021/696 of the European Parliament and of the Council of 28 April 2021 establishing the Union Space Programme and the European Union Agency for the Space Programme and repealing Regulations (EU) No 912/2010, (EU) No 1285/2013 and (EU) No 377/2014 and Decision No 541/2014/EU, OJ L 170/69, May 12th, 2021, p. 69-148, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R0696>, (last accessed October 20th 2024).
- 3 Available at: https://defence-industry-space.ec.europa.eu/eu-space/iris2-secure-connectivity_en, (last accessed October 20th 2024).
- 4 Available at: https://www.esa.int/About_Us/Corporate_news/ESA_and_the_EU, (last accessed on October 20th, 2024).
- 5 EU Regulation (EU) 2023/588 of the European Parliament and of the Council of 15 March 2023 establishing the Union Secure Connectivity Programme for the period 2023-2027, OJ L 79, March 17th, .2023, p. 1–39, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R0588>, (last accessed December 7th, 2023).
- 6 Available at: <https://www.european-space-law.com/>, (last accessed October 20th, 2024).
- 7 Id.
- 8 U.S. Space Command Public Affairs Office, News, “Russian direct-ascent anti-satellite missile test creates significant, long-lasting space debris”, available at: <https://www.spacecom.mil/Newsroom/News/Article-Display/Article/2842957/russian-direct-ascent-anti-satellite-missile-test-creates-significant-long-last/>, (last accessed October 20, 2024); B. Weeden, ‘Secure World Foundation, 2007 Chinese Anti-Satellite Test Fact Sheet’, Updated November 23, 2010, available at: https://swfound.org/media/9550/chinese_asat_fact_sheet_updated_2012.pdf, (last accessed October 20th, 2024).
- 9 U.S. Department of State, Press Statement, Antony J. Blinken, Secretary of State, “Russia Conducts Destructive Anti-Satellite Missile Test”, November 15th, 2021, available at: <https://www.state.gov/russia-conducts-destructive-anti-satellite-missile-test/> (last accessed December 7th, 2023); European Commission, High Representative of the Union for Foreign Affairs and Security Policy, Joint Communication to the European

From a geopolitical perspective, from the very beginning of the space age, countries have pursued and continue to pursue their agendas through their presence and strength in space. A regulatory framework would create a balance of power and lead to beneficial competition rather than a power race.

From a commercial perspective, more and more companies are getting involved in space activities. Given the inherent risk of space activities, registration, liability, insurance, and competition aspects of such activities should be addressed. Furthermore, conflicts of interest may arise among space players, and a clear regulatory framework would provide a dispute resolution mechanism. Since space assets are expensive and space activities are dangerous, a clear regulatory framework would also attract investment.

The gradual congestion of space, the commercialization of space exploration and activities, and the rise of cyber threats also pose a risk to the safety, sustainability, and security of space operations and systems that depend on space technologies.¹⁰

In order to address such challenges and to use space technologies effectively and peacefully, it is imperative that policies and regulations be developed and adopted at the international, regional, and national levels. A clear regulatory framework would provide all players with opportunities to benefit from space activities and solve concerns arising from such activities. To ensure the safety, security, and sustainability of space activities, to enhance the safety, security and resilience of space infrastructures (ground, space, links, and connections to user segments) and to continue to reap the economic benefits of space as well as to provide a competitive market for space players, the EU has also taken both regulatory and policy actions.¹¹ In addition, legislative progress has been and continues to be made at both international and national levels.

3. Current Regulatory Framework Governing Space Law in the EU

At the international level, five multilateral space law treaties have been adopted under the auspices of the United Nations. The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies of 1967 (hereinafter OST) serves as the constitution of space law.¹² Most of its provisions have attained the status of customary international law, such as those relating to space freedoms, the principle of non-appropriation, and the principle of peaceful use. Although the EU is not a party to the OST, its members are, and since most of the OST's provisions have attained customary international law status, the EU is also bound by them. The OST was followed by the adoption of the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (the Rescue Agreement), the Convention on International Liability for Damage Caused by Space Objects (the Liability Convention), the Convention on Registration of Objects Launched into Outer Space (the Registration Convention), and the Agreement Governing the Activities of States on the Moon

Parliament and the Council, European Union Space Strategy for Security and Defence, Brussels, March 10th, 2023, at 1, available at [https://ec.europa.eu/transparency/documents-register/detail?ref=JOIN\(2023\)9&lang=en](https://ec.europa.eu/transparency/documents-register/detail?ref=JOIN(2023)9&lang=en) (last accessed December 1st, 2023); J. Roulette, "Debris From Test of Russian Antisatellite Weapon Forces Astronauts to Shelter", New York Times, November 15th, 2021, available at: <https://www.nytimes.com/2021/11/15/science/russia-anti-satellite-missile-test-debris.html>, (last accessed December 7th, 2023); N. Raju, 'Russia's Anti-Satellite Test Should Lead to a Multilateral Ban', Stockholm International Peace Research Institute, December 7th, 2021, available at: <https://www.sipri.org/commentary/essay/2021/russias-anti-satellite-test-should-lead-multilateral-ban>; (last accessed December 7th, 2023).

10 J. Wouters and G. Pavesi, "The Final Frontier? The European Union and the Governance of Outer Space" Working Paper No. 234 – December (2022), at 2, available at: https://ghum.kuleuven.be/ggs/publications/working_papers/wp234-wouters-pavesi.pdf (last accessed December 7th, 2023).

11 European Commission, Defence Industry and Space/EU Space, available at: https://defence-industry-space.ec.europa.eu/eu-space_en (last accessed October 20th, 2024); European Council, Council of the European Union, EU Space Policy, <https://www.consilium.europa.eu/en/policies/eu-space-programme/>, (last accessed on January 13th, 2025).

12 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Jan. 27th, 1967), 610 U.N.T.S. 205 (entered into force Oct. 10th, 1967) (hereinafter the OST)

and Other Celestial Bodies (hereinafter the Moon Agreement).¹³ The fundamental treaties were adopted a long time ago. Since their adoption, new issues have emerged. The general framework established by the fundamental treaties is lagging behind the rapidly changing space sector.

These fundamental space law treaties are complemented by additional international agreements, the principles, resolutions, and guidelines of the United Nations General Assembly (hereinafter UNGA), as well as the Memorandum of Understandings. After the failure of the Moon Agreement, the trend in international space law has shifted from binding treaties to non-binding UNGA principles, resolutions, and guidelines.¹⁴

However, another shift has begun with the Artemis Accord.¹⁵ The Artemis Accord, being a set of bilateral agreements with space agencies of other countries, including European countries, provides principles that the National Aeronautics and Space Administration (hereinafter NASA) has identified as important for regulating the use and exploration of the Moon and eventually Mars.¹⁶

While these sources, collectively, provide a general framework for space activities, they are unable to effectively address the challenges posed by novel and evolving space activities.¹⁷

Space-related decisions and regulations have also been adopted over time at the EU level. Before the recognition of space as a shared or parallel competence, legislative actions draw on competences from other areas to facilitate these developments.¹⁸ Space activities have impacts on numerous sectors. For instance, the establishment and use of the EU's key project, Galileo, relies on the trans-European network competence.¹⁹ The Directive Establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) was another example of such interconnection, relying on special competences such as environmental policy.²⁰ This approach was already indicated in the Communication on "The Community and space: a coherent approach" of 1988 as:

*"[t]here are many different areas in which the Community has exclusive or joint competences and ambitions, and on which space activities have or are likely to have a bearing: these include research, telecommunications, industrial development, agriculture, the environment, development aid, regional development."*²¹

13 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, (April 22nd, 1968), 19 U.S.T. 7570 (Rescue Agreement); Convention on International Liability for Damage Caused by Space Objects, (March 29th, 1972), 24 U.S.T. 2389, T.I.A.S. No. 7762, 10 I.L.M. 965 (Liability Convention); Convention on Registration of Objects Launched into Outer Space, (Jan. 14th, 1975), 28 U.S.T. 695 (Registration Convention); Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, (Dec. 18th, 1979), 1363 U.N.T.S. 3 (hereinafter Moon Agreement)

14 As of 2023, only 18 countries are parties to the Moon Agreement. None of the space faring countries ratified it. Although France and India signed it, they never ratified it.

15 The United States Department of State and the National Aeronautics and Space Administration (hereinafter NASA), Artemis Accord, Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, Comets, and Asteroids for Peaceful Purposes, October 13th, 2020, available at: <https://www.nasa.gov/wp-content/uploads/2022/11/Artemis-Accords-signed-13Oct2020.pdf> (last accessed December 7th, 2023).

16 NASA, News Release, "International Partners Advance Cooperation with First Signings of Artemis Accords," available at: <https://www.nasa.gov/news-release/nasa-international-partners-advance-cooperation-with-first-signings-of-artemis-accords/>, (last accessed December 7th, 2023) and Bulgaria, Czech Republic, France, Germany, Iceland, Italy, Luxembourg, Netherlands, Poland, Romania, The Netherlands and Spain are European signatories, available at: <https://www.state.gov/artemis-accords/>

17 T. Masson-Zwaan and M. Hofmann, Introduction to Space Law, 4th ed. (Wolters Kluwer 2019), 37- 47.

18 While some authors refer to space as shared competence due to its mention in Article 4 of the TFEU, some others do not agree with that. Those who disagree with this opinion argue that space is not included in Article 4 paragraph 2, which lists shared competences, so its inclusion of space in Article 4 paragraph 3, but not paragraph 2 with the other shared competences makes the space competence different from shared competences listed in paragraph 2. They reasoned their argument by using these examples: "For the 'normal' shared competences listed in paragraph 2, the Member State's competence is 'subsidiary' to the EU competence: the Member State may only exercise its competence if the EU does not (any longer) make use of its competence; this is also referred to as the 'pre-emption principle'." For space, the competencies of EU and Member States 'co-exist', meaning that the Member State does not have to wait for the EU to decide whether it will take action or not. Space is therefore sometimes referred to as a parallel competence" T. Masson-Zwaan and M. Hofmann, Introduction to Space Law, 4th ed., (Wolters Kluwer 2019).

19 Regulation 683/2008 on the Further Implementation of the European Satellite Navigation Programs (EGNOS and Galileo), OJ L 196/1, July 24, 2008, at 1.

20 Directive Establishing an Infrastructure for Spatial Information in the European Community (INSPIRE), OJ L 108, April 25, 2007, at 1-14.

21 Commission of the European Communities, COM (88) 417 final, Brussels, 26 July 1988, The Community and Space: A Coherent Approach at 10, available at: <http://aei.pitt.edu/3821/1/3821.pdf> (last accessed December 2nd, 2023).

The TFEU codified space as a shared competence in 2009.²² However, this competence has its limits.

Article 4(3) of the Treaty of the Functioning of the European Union (hereinafter TFEU) “In the areas of research, technological development and space, the Union shall have competence to carry out activities, in particular to define and implement programs; however, the exercise of that competence shall not result in Member States being prevented from exercising theirs”.²³ The EU can only exercise this competence if such exercise does not prevent Member States from exercising theirs.

Article 189 of the TFEU is another important article regarding space in the EU. Article 189 states that:

1. *To promote scientific and technical progress, industrial competitiveness and the implementation of its policies, the Union shall draw up a European space policy. To this end, it may promote joint initiatives, support research and technological development and coordinate the efforts needed for the exploration and exploitation of space.*
2. *To contribute to attaining the objectives referred to in paragraph 1, the European Parliament and the Council, acting in accordance with the ordinary legislative procedure, shall establish the necessary measures, which may take the form of a European space programme, excluding any harmonisation of the laws and regulations of the Member States.*
3. *The Union shall establish any appropriate relations with the European Space Agency.*
4. *This Article shall be without prejudice to the other provisions of this Title.*²⁴

According to this Article, adoption of a common European space policy is allowed. Furthermore, paragraph 2 can be the basis for adoption of space related regulations and directives, etc. The EU has developed common space policies.²⁵ However, it clearly prohibits a common harmonized EU Space Law.

At the EU level, EU Regulations have been adopted and are being adopted. As two recent examples, EU Regulation (EU) 2021/696 on the Union Space Programme and the European Union Agency for the Space Programme established a new space program for the years 2021 to 2027 and Regulation (EU) 2023/588 established another space program on the Union Secure Connectivity Programme for the period 2023-2027.²⁶ Throughout the years, other legislative actions have also been taken.²⁷

Like several other countries, more than 10 EU Member States have adopted national laws governing space operations, including security aspects. Austria, Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, Spain, and Sweden have adopted some forms of national space laws.²⁸

Despite the existence of rules in both the EU and national levels, without a common framework, such fragmented rules do not provide a clear and efficient regulatory framework. Such fragmentation also adversely affects the security of the EU, the competitiveness of the EU space market, and sustainability of space activities. In the next section, policy discussions around the common European Space law will be explained.

²² Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community (Treaty of Lisbon), Lisbon, done December 13th, 2007, entered into force December 1st, 2009, OJ C 306/1 (2007).

²³ Article 4(3) of the Consolidated Version of the Treaty of the Functioning of the European Union OJ C 326, October 26th, p. 47–390, (2012) (hereinafter TFEU).

²⁴ Article 189 of the TFEU.

²⁵ European Council, Council of the European Union, EU Space Policy, <https://www.consilium.europa.eu/en/policies/eu-space-programme/>, (last accessed on January 13th, 2025).

²⁶ Supra note 1 and Supra note 2

²⁷ For more: https://www.euspa.europa.eu/media-library/register-of-documents?title=&field_id_value=&field_author_value=&field_date_uploaded_value%5Bvalue%5D%5Bdate%5D=&field_date_uploaded_value_1%5Bvalue%5D%5Bdate%5D=&field_year_tid=All&field_language_version_value=All&field_categories_tid%5B0%5D=3120

²⁸ National Space Law Database: <https://www.unoosa.org/oosa/en/ourwork/spacelaw/nationalspacelaw/index.html>

4. The Need for a Common European Space Law

As discussed above, at the EU level, some aspects of space activities are governed by regulations, decisions, and directives. Furthermore, more than 10 of the EU Member States have adopted national laws to regulate space operations. The absence of a common EU space law may lead to divergent rules across the EU. Such divergences have the potential to impact on the competitiveness of the EU space industry and the security of the EU. Space, as a strategic domain, provides services and data for economies, citizens, and public policies, which makes it relevant to and crucial for several areas.²⁹ In addition, space activities contribute to the policy objectives of the EU.³⁰ They facilitate digital and environmental transitions and increase the resilience of the EU.³¹

At the EU level, a coherent EU-wide approach should be adopted in the context of escalating power competition and resilience against threats to the EU and its Member States.

5. Current Political Discussions on a Common European Space Law

A common EU space law has been the subject of ongoing discussions and considerations within European institutions. The idea of proposing a common EU space law has been explored in various documents.³²

In recent years, the Russian invasion of Ukraine has brought the issue of a common EU space law back into the spotlight. European institutions have re-evaluated the EU's independence and resilience, particularly in outer space.³³ Recognizing space as a strategic domain within the Strategic Compass Framework, European leaders have called for the development of an EU Space Strategy for Security and Defence.³⁴ On March 10th, 2023, this initiative culminated in joint communication to the European Parliament and the Council, urging the establishment of a common EU Space Law:

To ensure a consistent EU-wide approach, and building on the joint communication on an EU Approach for Space Traffic Management, the Commission will consider proposing an EU Space Law. While protecting national security interests, such a legislative proposal could provide the framework to collectively enhance the level of resilience of space systems and services in the EU and ensure coordination between Member States, including in remote strategic ground infrastructure locations such as the EU outermost regions.³⁵

²⁹ European Commission, High Representative of the Union for Foreign Affairs and Security Policy, Joint Communication to the European Parliament and the Council, An EU Approach for Space Traffic Management An EU contribution addressing a global challenge Strasbourg, February 15th, 2022 JOIN(2022) 4 final; European Commission, High Representative of the Union for Foreign Affairs and Security Policy, Joint Communication to the European Parliament and the Council, European Union Space Strategy for Security and Defence, Brussels, March 10th, 2023, at 1, available at [https://ec.europa.eu/transparency/documents-register/detail?ref=JOIN\(2023\)9&lang=en](https://ec.europa.eu/transparency/documents-register/detail?ref=JOIN(2023)9&lang=en) (last accessed December 1st, 2023).

³⁰ J. Robinson & M. Romancov, "The European Union and Space: Opportunities and Risks", EU Non-Proliferation Consortium, Non-Proliferation Papers, No. 37 January 2014, available at: https://www.sipri.org/sites/default/files/EUNPC_no-37-1.pdf (last accessed October 20th, 2024).

³¹ European Commission, Defence Industry and Space/EU Space, available at: https://defence-industry-space.ec.europa.eu/eu-space_en (last accessed October 20th, 2024); Council of the EU, Press release, Space: Council approves conclusions on the EU space strategy for security and defence, 14 November 2023 12:10, available at: <https://www.consilium.europa.eu/en/press/press-releases/2023/11/14/space-council-approves-conclusions-on-the-eu-space-strategy-for-security-and-defence/>, (last accessed October 20th, 2024).

³² European Commission, High Representative of the Union for Foreign Affairs and Security Policy, Joint Communication to the European Parliament and the Council, European Union Space Strategy for Security and Defence, Brussels, March 10th, 2023, at 3, available at [https://ec.europa.eu/transparency/documents-register/detail?ref=JOIN\(2023\)9&lang=en](https://ec.europa.eu/transparency/documents-register/detail?ref=JOIN(2023)9&lang=en) (last accessed December 1st, 2023); State of the Union 2023, Letter of Intent, Brussels, September 13th, 2023, at 4, available at https://state-of-the-union.ec.europa.eu/system/files/2023-09/SOTEU_2023_Letter_of_Intent_EN_0.pdf (last accessed December 1st, 2023).

³³ European Commission, High Representative of the Union for Foreign Affairs and Security Policy, Joint Communication to the European Parliament and the Council, An EU Approach for Space Traffic Management an EU contribution addressing a global challenge Strasbourg, February 15th, 2022 JOIN(2022) 4 final; European Commission, High Representative of the Union for Foreign Affairs and Security Policy, Joint Communication to the European Parliament and the Council, European Union Space Strategy for Security and Defence, Brussels, March 10th, 2023, at 1, available at [https://ec.europa.eu/transparency/documents-register/detail?ref=JOIN\(2023\)9&lang=en](https://ec.europa.eu/transparency/documents-register/detail?ref=JOIN(2023)9&lang=en) (last accessed December 1st, 2023).

³⁴ EU, Strategic Communications, A Strategic Compass for Security and Defence, For a European Union That Protects Its Citizens, Values And Interests and Contributes to International Peace and Security, March 24th, 2022, at 43, available at: https://www.eeas.europa.eu/sites/default/files/documents/strategic_compass_en3_web.pdf (last accessed December 8th, 2023); European Commission, High Representative of the Union for Foreign Affairs and Security Policy, Joint Communication to the European Parliament and the Council, European Union Space Strategy for Security and Defence, Brussels, March 10th, 2023, at 1, available at [https://ec.europa.eu/transparency/documents-register/detail?ref=JOIN\(2023\)9&lang=en](https://ec.europa.eu/transparency/documents-register/detail?ref=JOIN(2023)9&lang=en) (last accessed December 1st, 2023).

³⁵ European Commission, High Representative of the Union for Foreign Affairs and Security Policy, Joint Communication to the European Parliament

The need for a common EU space law has also acknowledged by various EU institutions.³⁶ There are recent developments in EU space law focusing on space traffic management. Recently, the Council adopted Conclusions regarding space traffic management on December 8th, 2023.³⁷ The conclusions focus on the challenges associated with congested orbital space and the need to propose EU legislation to safeguard a safe and sustainable European space policy. The proposal for a common EU space law was anticipated to be included in the Commission's 2025 work programme, scheduled for publication in February 2025.³⁸ As February 2025 has passed, it is confirmed that the proposal has indeed been included, with a reference to Article 114 of the TFEU.³⁹

6. The Feasibility of the Common EU Space Law

As discussed in the previous sections, the need for harmonized regulation to govern space activities is evident. Despite ongoing political discussions on a common EU space law, legal barriers have impeded the adoption of a common EU Space Law. The main obstacle is the question of competence, particularly in light of the existing provisions in Articles 4(3) and 189.⁴⁰ These articles explicitly protect the competence of Member States, precluding any harmonization of space law and posing a significant challenge to the establishment of a common EU space law.

To address these limitations, some scholars consider linking space activities to existing economic activities.⁴¹ In this way, at the EU level, exclusive and other shared competences can be used as a basis for a common EU space law. These scholars evaluate potential articles, such as Articles 2(4), 114, 115, 170-173, and 352, as alternative bases for a common EU space law.⁴² In particular, Prof. Von der Dunk suggests focusing on safety and sustainability.⁴³ Furthermore, a draft EU space law is expected to be published in early 2025 with competence over single market.⁴⁴ While the EU may regulate some aspects of space activities based on certain provisions, including both Articles 4(3) and 189 and other articles, the author of the paper is of the opinion that, even with an alternative basis, the clear limitations of Articles 4(3) and 189 would constitute an important challenge even after the development of a possible common EU space law.⁴⁵ Therefore,

and the Council, European Union Space Strategy for Security and Defence, Brussels, March 10th, 2023, at 3, available at [https://ec.europa.eu/transparency/documents-register/detail?ref=JOIN\(2023\)9&lang=en](https://ec.europa.eu/transparency/documents-register/detail?ref=JOIN(2023)9&lang=en) (last accessed December 1st, 2023)

36 Documents listed in supra note 21 and 27.

37 Council of the EU, Draft Council conclusions on "Space traffic management: state of play", Brussels, November 16th, 2023, available at: <https://data.consilium.europa.eu/doc/document/ST-15231-2023-INIT/en/pdf> (last accessed December 9th, 2023).

38 European Parliament, Legislative Train Schedule, EU space law, In "A new plan for Europe's sustainable prosperity and competitiveness" <https://www.europarl.europa.eu/legislative-train/theme-a-europe-fit-for-the-digital-age/file-eu-space-law> (last accessed January 13, 2025).

39 European Commission, Annexes to the Communication From the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Commission Work Programme 2025: Moving forward together – A Bolder, Simpler, Faster Union, available at: https://commission.europa.eu/document/download/7617998c-86e6-4a74-b33c-249e8a7938cd_en?filename=COM_2025_45_1_annexes_EN.pdf

40 S. Potter, "Approaching Harmonization: Examining the European Union's Efforts to Create a Common EU Space Law and Assessing its Potential Legal Foundations," Stanford-Vienna European Union Law Working Paper No. 77, (2023), at 6, available at: <https://law.stanford.edu/wp-content/uploads/2023/05/EU-Law-WP-77-Potter.pdf> (last accessed October 21st, 2024).

41 D. Linden, "The Impact of National Space Legislation on Private Space Undertakings: Regulatory Competition vs. Harmonization" 8(1) Journal of Science Policy & Governance, 1, at 8 and 9 (2016), available at: https://www.sciencepolicyjournal.org/uploads/5/4/3/4/5434385/linden_nationalspacelegislation.pdf (last accessed December 9th, 2023); S. Potter, "Approaching Harmonization: Examining the European Union's Efforts to Create a Common EU Space Law and Assessing its Potential Legal Foundations," Stanford-Vienna European Union Law Working Paper No. 77, at (2023), at 17-22, available at: <https://law.stanford.edu/wp-content/uploads/2023/05/EU-Law-WP-77-Potter.pdf> (last accessed October 21st, 2024).

42 *Id.*; *Id.*

43 Frans Von der Dunk opinion reported in D. Werner, "Further delays and hurdles for EU Space Law", October 18, 2024 <https://spacenews.com/further-delays-and-hurdles-for-eu-space-law/>, (last accessed October 21, 2024).

44 European Parliament, Legislative Train Schedule, EU space law, In "A new plan for Europe's sustainable prosperity and competitiveness" <https://www.europarl.europa.eu/legislative-train/theme-a-europe-fit-for-the-digital-age/file-eu-space-law> (last accessed January 13, 2025); Volterra Fietta, European Commission set to adopt first European Space Law, Published on 31 August 2024 in Client Alerts, <https://volterrafietta.com/archives/1439> (last accessed on January 14, 2025); Anna Desmarais, "Creating a 'true single market' in orbit: What should we expect from Europe's new space law?" Euro News, April 4, 2024, <https://www.euronews.com/next/2024/04/04/creating-a-true-single-market-in-orbit-what-should-we-expect-from-europes-new-space-law> (last accessed on January 14, 2025).

45 For instance, these two directives took Article 114 as their basis: Directive (EU) 2022/2555 of the European Parliament and of the Council of 14 December 2022 on measures for a high common level of cybersecurity across the Union, amending Regulation (EU) No 910/2014 and Directive

despite ongoing efforts to rely on alternative competences, a clear and specific legal basis for a common EU space law remains absent.

To overcome this obstacle, two possible solutions can be proposed: an amendment of Articles 4(3) and 189 of the TFEU or the adoption of a non-binding framework for space activities. Amending the TFEU involves a complex process. Article 48 of the Consolidated Version of the Treaty on European Union (hereinafter TEU) outlines the revision procedure and requires consensus among Member States for revisions on the Treaties.⁴⁶ Political will is important to manage this complex process and to achieve the necessary consensus among Member States.

Examining the initial political will regarding a common EU space law, it is clear that the absence of paragraph 2 in the initial draft of Article 189 showed a lack of political will to provide the EU with a competence for a common EU space law. However, this provision was adopted in 2009, and since then space activities and their implications have gained great strategic importance for the EU, its Member States, and the whole world. Since then, the approach of the EU and its Member States to a common EU space law has also changed.⁴⁷ For instance, space was recognized as a strategic domain by European leaders in 2022.⁴⁸ In addition, EU space law was one of the main priorities and initiatives for 2024 addressed in the letter of intent of EU Commission President Ursula von der Leyen.⁴⁹ The EU has also started a targeted stakeholder consultation to gather views on possible common EU rules to enhance safety, resilience, and sustainability of space operations.⁵⁰ Furthermore, such political will is clearly expressed in various documents by calling for a common EU space law.⁵¹ Such political developments indicate that there is a political will in the EU to regulate some aspects of space activities, in particular safety, security, and resilience as well as internal market and competition. Nevertheless, spreading this political will to all Member States remains a challenge, given their various space capabilities and approaches to space law.

There have been recent developments in EU space law focusing on Space Traffic Management. However, the complex nature of space competence within the EU has required amendments to the EU treaties, often resulting in delays in legislative process. While there is a political will to regulate certain aspects of space activities, the current regulatory framework has historically hindered the adoption of a common EU space law. Nevertheless, ongoing efforts to develop such a framework reflect a notable shift in political will.

In view of these challenges, a temporary solution could have been found in the adoption of a non-binding framework for space activities. Such a framework would provide guidance for a harmonized approach while allowing sufficient time to obtain the necessary will for amendments to the TFEU.

7. Opportunities Coming with Common EU Space Law

A common EU space law would bring several advantages. First, a common EU space law would address several issues arising from fragmentation. Through such a regulatory framework, the EU would enable European space sectors to use space effectively, safely, and sustainably, thereby increasing the EU's resilience and cooperation among Member States.

(EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive OJ L 333/80 December 27th, 2022, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2555&qid=1702153645664> (last accessed December 9th, 2023) and the Directive (EU) 2022/2557 of the European Parliament and of the Council of 14 December 2022 on the resilience of critical entities and repealing Council Directive 2008/114/EC, OJ L 333/164, December 27th, 2022, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2557> (last accessed December 9th, 2023).

46 Article 48 of the Consolidated Version of the Treaty on European Union (hereinafter TEU), C 326/15, October 26th, 2012, available at: https://eur-lex.europa.eu/resource.html?uri=cellar:2bf140bf-a3f8-4ab2-b506-fd71826e6da6.0023.02/DOC_1&format=PDF, (last accessed December 9th, 2023).

47 *Supra* note 4 at 3.

48 https://defence-industry-space.ec.europa.eu/eu-space-policy/eu-space-strategy-security-and-defence_en

49 European Commission, State of the Union 2023, Letter of Intent, September 13rd, 2023, available at: https://state-of-the-union.ec.europa.eu/system/files/2023-09/SOTEU_2023_Letter_of_Intent_EN_0.pdf, (last accessed December 6th, 2023).

50 https://defence-industry-space.ec.europa.eu/consultations-0/targeted-consultation-eu-space-law_en

51 Documents listed in *supra* note 21 and 27.

The EU would certainly gain a stronger position vis-à-vis its space partners and competitors from such regulatory approach, which aligns with the EU's aspiration to have independent capabilities across key space domains.⁵²

From a commercial perspective, a clear and unified framework provides a predictable and stable regulatory environment. Such an environment can attract new investments and business opportunities, fostering cooperation, joint ventures, and mergers.⁵³

8. Challenges Coming with Common EU Space Law

While a common EU space law has several advantages, it also poses certain challenges. As discussed above, space operations are very costly, and a common EU space law may result in strict rules and higher compliance costs for space companies, leading to a loss of competitiveness for European space companies compared to their international competitors.⁵⁴

There is a tendency to solve such problems by extending the application of EU Regulation extraterritorially. In addition to this tendency, whenever there is an EU regulation, one of the most important questions raised is about the extraterritorial application of such regulations. It is therefore necessary to clarify the application of such a common EU space law, in particular to EU-based space operators and manufacturers doing business in third countries or space companies with customers in third countries.

The challenges posed by a possible common EU space law require a careful balance between regulatory framework control and industry competitiveness. It is important to establish clear guidelines for extraterritorial application and to foster collaborative efforts between regulatory bodies and the space sector to address these challenges.

9. Conclusion

The current regulatory framework does not provide a legal basis for a common EU space law. Nevertheless, the growing need for such legislation and the corresponding legislative process persist despite certain deficiencies.⁵⁵

Ideally, achieving a binding regulatory framework requires an amendment of the TFEU, a process of considerable complexity. Given the complexity of the revision process, the pursuit of a common EU space law should be considered quite significant. This change will require the unanimous political will of the Member States. The author of this paper is of the opinion that a unified approach is needed, especially considering the reflection of space activities in the European economy. It is important to note that the foundation of the EU is based on economic harmonization, and space activities are introducing a new era in economies and economic activities. Certain political developments indicate that there is a political will in the EU to regulate specific aspects of space activities, in particular safety, security, and resilience as well as single market.

52 D. Linden, "The Impact of National Space Legislation on Private Space Undertakings: Regulatory Competition vs. Harmonization", *Journal of Science Policy & Governance*, vol. 8, no. 1 February 2016 at 7 and 8, available at: https://www.sciencepolicyjournal.org/uploads/5/4/3/4/5434385/linden_nationalspacelegislation.pdf (last accessed December 2nd, 2023); European Commission, White paper - Space: a new European frontier for an expanding Union - An action plan for implementing the European Space policy {SEC (2003) 1249 } COM/2003/0673 final, Brussels, November 11th, 2003, at 26, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52003DC0673> , (last accessed December 9th, 2023).

53 Eurospace, Eurospace Position Paper: European space industry contribution to the future "EU Space Law" – October 2023, at 6, available at: <https://eurospace.org/eurospace-position-paper-contribution-to-the-future-eu-space-law/> (last accessed December 9th, 2023).

54 Id. at 5.

55 European Parliament, Legislative Train Schedule, EU space law, In "A new plan for Europe's sustainable prosperity and competitiveness" <https://www.europarl.europa.eu/legislative-train/theme-a-europe-fit-for-the-digital-age/file-eu-space-law> (last accessed January 13, 2025).



An alternative and arguably more prudent approach could be to start with a non-binding framework. Then, with the necessary amendments, a transition to a binding regulatory framework could be considered. The author would argue against a premature commitment to a binding regulatory framework, emphasizing the need to fully anticipate the implications of space activities. Therefore, the author advocates for an initial comprehensive non-binding framework, including the commercial aspects of space activities.

As time progresses, individuals and companies become more aware of the opportunities and challenges associated with space activities, these non-binding rules could attain customary rules or be codified after the necessary legislative processes, which would then be available for the adoption of such a common EU space law. Even if a common regulatory approach is adopted in the near future, it will have its benefits and challenges.

Ordering the Infinite: A Conceptual Approach to Outer Space Regulation

Michael Hammer*

Abstract

This paper addresses the viability of recent proposals in American law to designate outer space as a sector of Critical Infrastructure worthy of increased regulation. Critical Infrastructure designations serve to protect infrastructure from threats to national security ranging from domestic terrorism to natural disasters to cybersecurity. A cybersecurity attack on outer space systems could cripple an entire economy in mere minutes. Thus, the cyber security threats posed in outer space certainly are worthy of CI designation. However, an outer space CI sector designation would nonetheless be infeasible. Outer space is far too vast to be defined as a sector. Outer space's undefinable nature is most observable in the ongoing dispute as to its delimitation. At times there have been more delimitation proposals than authors, each with its own unique views as to the distinct nature of outer space. This wealth of perspectives made a singular view of demarcation infeasible and now makes a singular sector designation similarly infeasible. Moreover, outer space's resemblance to a global commons would also threaten the ability for increased national regulation, yet explicit carve-outs in outer space law make national regulation required. These seeming challenges may present a new way forward. Both outer space's vast nature and resemblance to a global commons have direct parallels in the realm of cyberspace. Cyberspace is also a critical aspect of national infrastructure that has been successfully regulated without the use of CI designation. Therefore, more research is required to develop a method of outer space regulation in the mold of cyberspace regulation.

1. An Introduction to critical infrastructure

For most of history, the predominant threat to national security was that of opposing armies. However, war is no longer confined to the battlefield. A modern national defense scheme must consider a much larger range of threats. American law recognized this new reality in 1996 when President Bill Clinton enacted Executive Order 13010 to establish Critical Infrastructure sectors and created the Commission on Critical Infrastructure ("CI").¹ As evident in the name such sectors are considered critical and thus subject to heightened security regulation. The need for such legislation was highlighted shortly thereafter by the threat of national terrorist attacks such as that on the Twin Towers on September 11, 2001, and to a lesser extent the attacks on the metro and railways in Madrid in 2004 and London in 2005.²

While threats of terrorism and natural disasters seemed to be the initial thrust of CI legislation, cybersecurity attacks now are the most serious and plausible threats to CI. The digitalization of society has created an environment with far more digital avenues for cyber-attacks on CI.³ In response to the risk of cybersecurity attacks, the National Strategy to Secure Cyberspace (NSSC) was published in February 2003. The NSSC recognized that cybersecurity attacks are particularly problematic because required security investments are financially prohibitive and not easily adaptable to smaller systems.⁴

Moreover, the widespread digitalization of infrastructure systems has led to an increase in the interconnectivity of said

* Michael Hammer is a recent graduate from the University of Michigan. Mr. Hammer is currently pursuing a master's in Hebrew Literature from Yeshiva University and will be attending Harvard Law School beginning in August 2025. Mr. Hammer conducted this research under the director of the Office of National Security as a Cyber Threat Intelligence Integration Center Grant awardee.

1 W. Clinton, Executive Order 13010: Critical Infrastructure Protection, The White House, Washington, DC www.fas.org/irp/offdocs/eo13010.htm, July 15, 1996.

2 De Felice, Fabio, Ilaria Baffo, and Antonella Petrillo. 2022. "Critical Infrastructures Overview: Past, Present and Future" *Sustainability* 14, no. 4: 2233. <https://doi.org/10.3390/su14042233>. 2.

3 Id.17.

4 President's Critical Infrastructure Protection Board, The National Strategy to Secure Cyberspace, The White House, Washington, DC, www.whitehouse.gov/pcipb/cyberspace_strategy.pdf, 2003.

systems. This system of interdependence only heightens the risks that attacks on CI, particularly cyber-attacks, pose to national security by introducing unforeseen vulnerabilities and potential chain reactions.⁵

This interconnectivity also poses a regulatory difficulty in identifying distinct sectors of Critical Infrastructure. The most recent definition of CI was through The Critical Infrastructures Protection Act of 2001 which recognized as Critical Infrastructure all “systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters.”⁶ The definition of CI has remained relatively consistent in American legislation.⁷ However, there remains a lack of consensus as to the parameters of Critical Infrastructure in international arenas largely due to the technological development of infrastructure systems.⁸ Even in American legislation, the sectors which have been considered critical have changed over time. EO 13010 identified 8 sectors as critical: telecommunications, electrical power systems, gas and oil storage and transportation, banking and finance, transportation, water supply systems, emergency services (including medical, police, fire, and rescue), and continuity of government.⁹ At present, 16 sectors are classified as Critical Infrastructure.¹⁰ Absent from that list is the space systems sector. In light of recent proposals to establish outer space as a sector of critical infrastructure, this exclusion must be re-examined.

2. The Criticality of Space Systems

To assess the appropriateness of a CI classification, the vitality of outer space systems to American society must be established. An extreme case may highlight this vitality. If we were to experience a total satellite blackout, a total economic collapse would ensue.

In an Institute of Navigation keynote speech titled “A Day Without Satellites”, solar physicist Pål Brekke gives a quite vivid description of such a scenario.

“You wake up and turn on the TV. Your usual shows aren’t airing. You flip on the radio and learn that the Paris and Tokyo stock markets have closed. Back on TV, CNN is trying to use Skype in an attempt to cover what’s happening around the world following a solar superstorm. In a U.S. bunker, the military has lost contact with armed drones flying over hostile areas in the Middle East. Loss of global communication satellites makes it difficult to send commands and surveillance data to soldiers, ships and aircraft, rendering them vulnerable to attack. Throughout the day, more challenges arise. First responders don’t have access to their location systems. Delays in ground and air traffic begin to develop. Systems that depend on GPS time stamps — ATMs, power grids, computer-data and cell-phone networks — begin to fail, and the cloud becomes unstable. The internet soon collapses.”¹¹

The most immediate result of this sort of infrastructure failure would be seen in systems dependent on navigational data. Flights, military and commercial, would immediately be grounded, public transportation systems would lose their ability to coordinate, and general transportation would face serious safety concerns.¹² More concerning, we would lose

5 De Felice, Fabio, Ilaria Baffo, and Antonella Petrillo. Critical Infrastructures Overview: Past, Present and Future, 3.

6 Critical Infrastructures Protection Act of 2001, 42 U.S.C. § 5195c(e) (2012).

7 Dorsey Wilkin et al., “Cyberspace Policy for Critical Infrastructures,” Critical Infrastructure Protection II, 2008, 17–28, https://doi.org/10.1007/978-0-387-88523-0_2.

8 1. Collen M Newbill, “Defining Critical Infrastructure for a Global Application,” Indiana Journal of Global Legal Studies 26, no. 2 (2019): 761–80, <https://doi.org/10.2979/indjglolegstu.26.2.0761>, 778.

9 Dorsey Wilkin et al., Cyberspace Policy for Critical Infrastructures, 18.

10 Presidential Policy Directive — Critical Infrastructure Security and Resilience, Presidential Policy Directive 21, (Feb. 12, 2013), <https://obamawhitehouse.archives.gov/the-press-office/2013/02/12/presidential-policy-directive-critical-infrastructure-security-and-resil>.

11 Tracy Cozzens, “A Day without Satellites Would Affect Us All - GPS World,” GPS World - The Business and Technology of Global Navigation and Positioning, October 15, 2019, <https://www.gpsworld.com/a-day-without-satellites-would-affect-us-all/>.

12 Charlotte Van Camp and Walter Peeters, “A World without Satellite Data as a Result of a Global Cyber-Attack,” Space Policy 59 (February 2022), <https://doi.org/10.1016/j.spacepol.2021.101458>. 6.

access to timestamp data leading to the freezing of all communication and financial systems. Timestamp data derived from satellites is utilized for time and frequency coordination necessary for a wide variety of fundamental economic activities.¹³ In short, a full-scale satellite blackout would cause a near-immediate economic collapse.

Dr. Brekke addressed the threat to space systems in the context of a solar storm. The magnitude of a storm required to present the risks envisioned by Dr. Brekke is expected to occur once every thousand years,¹⁴ and cannot be avoided by mere increased security measures. However, the case presented can be taken as a useful analogy for the more pressing and actionable concern of cybersecurity threats. There are many ways in which external actors can threaten American Space systems some of which include jamming (interfering with electromagnetic signals), spoofing (manipulating positioning information), and dazzling (disabling satellites using lasers).¹⁵ The variety of these possibilities means that cyber-attacks on space systems by rival states, organized crime, terrorist groups, and even individual hackers must be guarded against.¹⁶ As a result, surveys have shown that cyber-attacks are seen as the most serious threat the space systems by space professionals.¹⁷

The damages of these attacks have also been born out in real-world events. Ukraine, on two separate occasions, has been a major victim of such attacks. First, in 2017, Ukraine suffered an attack now known as “Notpetyas” which inhibited the functions of banks, airports, and many government agencies.¹⁸ The attack spread to over 60 countries¹⁹ and resulted in a roughly \$10 billion loss.²⁰ More recently an American satellite was hacked by Russian operatives in order to disable Ukrainian military capabilities during the 2022 Russian invasion of Ukraine. This instance is particularly striking because as noted by Danish defense minister, Morten Bødskov, “Russia’s coordinated and destructive cyberattack before the invasion of Ukraine shows that cyberattacks are used actively and strategically in modern-day warfare, even if the threat and consequences of a cyberattack are not always visible for the public.”²¹

The issue is even more acute as commercial space activity expands. Military space systems, while still susceptible to some attacks, tend to be designed with security risks in mind. However, commercial space systems are often designed to maximize profits, leading to the use of less secure off-the-shelf technology.²²

For all the above reasons, it is undeniable that space systems are “so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters.”²³ Nonetheless, it remains unclear whether space systems are properly defined as a *unique sector* of Critical Infrastructure.

13 Charlotte Van Camp and Walter Peeters, A World without Satellite Data as a Result of a Global Cyber-Attack, 7.

14 Benjamin Pope, “Radioactive Traces in Tree Rings Reveal Earth’s History of Unexplained ‘Radiation Storms,’” The Conversation, October 25, 2022, <https://theconversation.com/radioactive-traces-in-tree-rings-reveal-earths-history-of-unexplained-radiation-storms-193080>

15 M. Moon, “SPACE DOMAIN AND ALLIED DEFENCE,” NATO Report 162 DSCFC 17 E rev.1 Fin, NATO, Brussels, 2017. 8.

16 David Livingstone and Patricia Lewis, “Space, the Final Frontier for Cybersecurity?” International Security Department, September 2016, 2.

17 Charlotte Van Camp and Walter Peeters, A World without Satellite Data as a Result of a Global Cyber-Attack, 2.

18 Laurens Cerulus, “How Ukraine Became a Test Bed for Cyberweaponry,” POLITICO, February 20, 2019, <https://www.politico.eu/article/ukraine-cyber-war-frontline-russia-malware-attacks/>.

19 Giulia Moschetta, Filipe Beato, and Akshay Joshi, “Cybersecurity Must Be Tightened up in This Era of Polycrisis,” World Economic Forum, February 23, 2023, <https://www.weforum.org/agenda/2023/02/cybersecurity-in-an-era-of-polycrisis/>.

20 Josephine Wolff, “How the NotPetya Attack Is Reshaping Cyber Insurance,” Brookings Inst.: Tech Stream, Dec. 1, 2021, <https://www.brookings.edu/techstream/how-the-notpetya-attack-is-reshaping-cyber-insurance/>.

21 Patrick Howell O’Neill, “Russia Hacked an American Satellite Company One Hour before the Ukraine Invasion,” MIT Technology Review, May 11, 2022, <https://www.technologyreview.com/2022/05/10/1051973/russia-hack-viasat-satellite-ukraine-invasion/>.

22 Charlotte Van Camp and Walter Peeters, A World without Satellite Data as a Result of a Global Cyber-Attack, 4.

23 Critical Infrastructures Protection Act of 2001, 42 U.S.C. § 5195c(e) (2012).

3. Challenges to Sector Designation

The criticality of space systems is primarily built upon the diversity of dependencies on space systems. An attack on space systems could threaten financial services, energy, transportation, communication, government facilities, and many other sectors. In fact, according to Sam Costa, the national counterintelligence officer for space at the Office of the Director of National Intelligence, “all of the critical infrastructure sectors rely on space.”²⁴ While this highlights the importance of space systems, it also poses challenges to a distinct designation as CI.

Because of the diversity of functions of space systems, space is quite different from a paradigmatic CI sector. Sectors are each designated a sector-specific agency to direct their regulatory policies²⁵; energy has the Department of Energy, financial services have the Department of the Treasury, etc. A similar regulatory policy could not be implemented for space. In the most recent proposal to designate space as a CI sector, there was a debate on exactly this question. Industries professionals were split between the Cybersecurity and Infrastructure Security Agency (CISA), the Space Force, the Department of Commerce, the Department of Transportation, and NASA.²⁶ There is no one clear regulatory body because there is no singular type of space system. Space systems encompass a wide array of technologies being used for an even wider array of purposes. As such they cannot be accurately categorized as a cohesive sector.

With that said, many other CI sectors are highly interconnected with many uses and purposes. For example, CISA recognizes that “the reliance of virtually all industries on electric power and fuels means that all sectors have some dependence on the Energy Sector.”²⁷ This statement is strikingly similar to Sam Costa’s on the role of space systems. However, the nature of these dependencies is quite different. The energy sector is divided into three segments: electricity, oil, and natural gas all of which have the same function of producing energy.²⁸ The structure of energy plants does not change whether they are being used for transportation or manufacturing. It is a diversity in application not a diversity of function. The same cannot be said of space systems. Even if the scope is limited to satellite technology, its functions are quite different. Satellite provider Inmarsat explains that “there are many types of satellites, serving different purposes for different organizations.”²⁹ Each of these satellite types is functionally distinct in that “the application or purpose of any given communication satellite will determine several factors; from onboard technology and equipment to orbital paths. And whilst some satellites travel in sync with the Earth’s rotation (geosynchronous orbit), others orbit much faster and closer to Earth.”³⁰ The variety of space technology uses makes systematic regulation quite difficult. How space communication systems should be regulated could be wildly different from that of navigational space systems due to their different technology, functions, and ends.

The need for distinct systems of regulation is clear even in the limited realm of satellite technology. Exploring the possibilities of a more expansive space sector would include even more varied technologies and bring rise to further questions of scope. Even defining the parameters of space is an issue that highlights the insufficiency of a classification of space as a singular sector.

24 Stew Magnuson, ANALYSIS: Acknowledging Space Systems as ‘Critical Infrastructure’, National Defense Magazine (May 10, 2022), <https://www.nationaldefensemagazine.org/articles/2022/5/10/acknowledging-space-systems-as-critical-infrastructure>.

25 Department of Homeland Security, NIPP 2013: Partnering for Critical Infrastructure Security and Resilience (2013), 43.

26 1. Frank Cilluffo et al., rep., Time to Designate Space Systems as Critical Infrastructure, CSC 2.0, 12-13.

27 “Energy Sector,” Energy Sector | Cybersecurity and Infrastructure Security Agency CISA, accessed May 26, 2024, <https://www.cisa.gov/topics/critical-infrastructure-security-and-resilience/critical-infrastructure-sectors/energy-sector>.

28 Id.

29 “A Straightforward Introduction to Satellite Communications,” Inmarsat Corporate Website, 2023, <https://www.inmarsat.com/en/insights/corporate/2023/a-straightforward-introduction-to-satellite-communications.html>.

30 Id.

3.1. Recognizing Space

The limits of space remain an open question.³¹ The most contentious, and most relevant, border is that between air and outer space. However, this is not the only border in question. As for the outward boundary, International Justice Manfred Lachs explains: “We have to plead sheer ignorance; for all that humanity may know, outer space may be infinite; it has, apparently, no frontier.”³² In this sense, outer space is unimaginably large with unimaginably diverse potential. This *theoretical* postulate of space as illimitable should be enough to stave off any attempts to limit space to a singular sector designation. Nonetheless, this represents merely a theoretical diversity. Practically there need be no upper bound of outer space. The ambiguity as to the border between air and outer space highlights more definite questions as to the current use of outer space.

3.2. The Demarcation Question Unanswered

The distinct jurisdiction of outer space was established in the Outer Space Treaty of 1967.³³ Yet in the 50-plus years since a clear demarcation of the zone has yet to be established. Such a demarcation would seemingly require a distinguishing characteristic by which to demarcate—a distinct nature of outer space. There is no lack of attempts to identify this characteristic. In fact, at times there have even been more distinct proposals than there have been authors.³⁴ Proposals have been made based on the distinct physical nature of space³⁵, aircraft inaccessibility^{36,37}, the use of satellite technology³⁸, the lack of military control³⁹, or even the principle of freedom⁴⁰. Each proposal makes a unique claim as to the conceptual, and potentially legal, character of space.

Some reject the possibility of spatial delimitation altogether and instead advocate for a functional approach.⁴¹ In this model, national jurisdiction is determined based on the function of particular objects. In broad strokes the functionalist approach was accurately summed up by Christopher Shawcross as early as 1957: “The question which should concern space law theorists is not to what height in space national sovereignty extends but for what purposes space may be used.”⁴²

This functionalist approach fundamentally acknowledges the difficulties inherent in trying to singularly define space—it is far too diverse to be defined by one conception of demarcation. In fact, in support of a functional approach scholar Modesto Seara Vázquez goes as far as to say that “a definition of the space seems to be impossible. This impossibility originates from the incapacity of human comprehension, not only for delimiting the space but even for forming a conception of it.”⁴³ The variety of perspectives on the fundamental nature of outer space evidences the absurdity of confining outer space to a singular sector. It is simply too broad and diverse to do so.

Yet the question of outer space delimitation has taken place on an international stage with many of the proposals presented coming from foreign sources. Thus, some may be inclined to categorize them as irrelevant to the discussion of American regulation which is at the crux of this research. However, America has consistently held a unique doctrine as to outer space delimitation that may be the most antithetical to the identification of outer space as a sector.

31 Report of the Committee on the Peaceful Uses of Outer Space to the 61st Session of the United Nations General Assembly (Excerpt). International Legal Materials. 2022. 30.

32 Manfred Lachs, *The Law of Outer Space: An Experience in Contemporary Law-Making*, 55 (1972).

33 Opened for signature Jan. 27, 1967, 18 U.S.T. 2410 [hereinafter Outer Space Treaty].

34 Thomas Gangale, *How High the Sky? The Definition and Delimitation of Outer Space and Territorial Airspace in International Law*, 234.

35 Olavo Bittencourt Neto, *Defining the Limits of Outer Space for Regulatory*. 42.

36 *Id.* 41.

37 *Id.* 44.

38 *Id.* 48.

39 *Id.* 54.

40 Gangale, *Supra* note 34, 373.

41 *Id.* 209.

42 Christopher Shawcross, Letter to the Editor, *The Times* (London). Reprinted under the title *Who Owns the Upper Air?* in *The Times Weekly Review* (London) (12 October 1957). Sourced from as Gangale, *How High the Sky? The Definition and Delimitation of Outer Space and Territorial Airspace in International Law*, 210.

43 Modesto Seara Vázquez, *The Functional Regulation of the Extra-Atmospheric Space*, 2 *Proc. on the L. of Outer Space* 143 (1960).

3.3. American Hesitancy to delimitation

America was one of the earliest supporters of the “No need theory”.⁴⁴ This theory suggests a continuation of the status quo in which no border has been agreed upon. The American delegation articulated the reason for the maintenance of this status quo most clearly at the 40th Session of the UN Committee on the Peaceful Uses of Outer Space in 2001:

Our position continues to be that defining or delimiting outer space is not necessary. ... some delegations support the notion of such a definition for its own sake. But without a practical problem to address, undertaking such a definition would be a risky exercise ... Whatever definition or delimitation were ultimately agreed upon would by its nature be arbitrary at worst, or, at best, be constrained by the current state of technology. For example, technological advances have increased the height at which aircraft can sustain flight, while they have decreased the height at which orbital flight of space vehicles is possible. These technological advances will likely continue. It would be dangerous for the Legal Subcommittee to agree to an artificial line between air space and outer space when it cannot predict the consequences of such a line.⁴⁵

The American logic is underlined by a fear of the constricting effect that a definition would create. For them, outer space is a diverse, vast, and constantly evolving realm. Thus, a singular line of demarcation would be “dangerous” with unpredictable consequences. It is only logical to extend these concerns to the potential constriction of outer space into a single sector. To caution the UN in outer space demarcation while nonchalantly proceeding with sector definition would be a mix of hypocrisy and hubris by the American government.

The need for a particular focus on outer space in the realm of national security regulation is clear, yet the typical tool of critical infrastructure classification is ill-equipped for the problem at hand. Is there a legitimate alternative for outer space regulation? Addressing this question requires a brief digression as to the backdrop in which outer space regulation takes place.

3.4. Regulating The Common Heritage Of Mankind

Generally, a state’s jurisdiction to regulate is determined by sovereignty.⁴⁶ Outside of the bounds of a state’s sovereign territory, jurisdiction becomes a thing of a much more tenuous system of international law. To pose a well-known example, before the establishment of an international treaty on the matter known as FATCA, the American IRS had little power to regulate the conduct of Swiss banks, an often-exploited fact.⁴⁷

As referenced above, outer space is not a realm of national sovereignty. The line at which airspace ends, wherever that may be, is the point at which sovereign territory ends. Like other territories outside of sovereign control, such as the high seas,⁴⁸ outer space is considered a *res communis omnium*.⁴⁹ This formulation of *res communis omnium* is based on what is known as the Common Heritage of Mankind Principle (CHM).⁵⁰ In 1952 scholars first proposed that outer space should be the common property of mankind.⁵¹ With that said, it was not until 1967 at the 22nd Session of

44 Olugbenga Toluwalake Oduntan, “Sovereignty and Jurisdiction in the Airspace and Outer Space: Legal Criteria for Spatial Delimitation,” *Sovereignty and Jurisdiction in the Airspace and Outer Space: Legal Criteria for Spatial Delimitation* (thesis, University of Kent at Canterbury, 2002), 238.

45 US Statement, Definition and Delimitation of Outer Space And The Character And Utilization Of The Geostationary Orbit, Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space at its 40th Session in Vienna from April, STATEMENT BY THE DELEGATION OF THE UNITED STATES OF AMERICA, April 2001.

46 Sergio Marchisio, “National Jurisdiction for Regulating Space Activities of Governmental and Non-Governmental Entities,” In United Nations/Thailand Workshop on Space Law, (November 2010). UNOOSA. 2.

47 Jane G. Song, The End of Secret Swiss Accounts? The Impact of the U.S. Foreign Account Tax Compliance Act (FATCA) on Switzerland’s Status as a Haven for Offshore Accounts, 35 Nw. J. Int’l L. & Bus. 687 (2015). <http://scholarlycommons.law.northwestern.edu/njilb/vol35/iss3/4>. 690.

48 Sergio Marchisio, National Jurisdiction for Regulating Space Activities of Governmental and Non-Governmental Entities, 4.

49 “Thing of the (entire) community.”

50 Id. 2

51 S. Liang, “The Meaning of the Principle of the Common Inheritance of Human Property,” *Political and Legal Forum* 5 (1990) 44. CNKI:SUN:ZFLT.0.1990-05-008. Sourced from Guoyu Wang and Xinyi Huang, On the Common Heritage of Mankind Principle in Space, 928.

the General Assembly in the context of the deep-sea floor that the principle of CHM was even formally introduced as a concept.⁵² In the same year the Outer Space Treaty of 1967 was passed.

The Outer Space Treaty of 1967 was the first major international treaty on Space law.⁵³ It is the foundation of all proceeding Space Law and sets the tone for future international space agreements. In Article I of OST it is established that “the exploration and use of outer space ... shall be the province of all mankind.”⁵⁴ The language here is strikingly similar to that of CHM. Then in the Moon Treaty of 1979 an explicit application of CHM was made in the context of celestial bodies: “the moon and its natural resources are the common heritage of mankind”.⁵⁵

However, the Moon Treaty failed ratification with the US as a notable holdout.⁵⁶ In fact, America has recently made it clear that it does not consider outer space to be a global commons.⁵⁷ Moreover, given that the term province of mankind is quite vague, some claim that this is merely a philosophical proposition, not a legal one.⁵⁸ According to one scholar even “in a legally binding document [CHM] carries no clear judicial connotation but belongs to the realm of politics, philosophy or morality and not law”.⁵⁹ Despite these protests, it seems that customary international law has established the Common Heritage of Mankind principle as a prime facie rejection of a principle of sovereignty with respect to outer space.⁶⁰

This rejection of the possibility of national sovereignty makes regulation on the basis of territorial jurisdiction an impossibility. Thus, there appears to be a challenge to the viability of national regulation in outer space; American has no more sovereign control on SpaceX than it does on Swiss banks. However, concurrent developments in early Space Law jurisprudence necessitated an establishment of personal jurisdiction for all space activities, thus ensuring a means to regulate.

During the drafting of the OST, the USSR and America were sharply divided as to the role of free commerce in outer space. In character, the USSR wanted to limit Outer Space activities to national governments while the US wanted to maintain the possibility of private enterprises in outer space.⁶¹ A compromise was developed in which private activities would be permitted only if first authorized by a state that could then be held liable if any issue arose.⁶² This compromise was codified in Article VI of the Outer Space Treaty of 1967:

States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions outlined in the present Treaty. The activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty.⁶³

52 Guoyu Wang and Xinyi Huang, “On the Common Heritage of Mankind Principle in Space,” *Acta Astronautica* 211 (October 2023): 926–38, <https://doi.org/10.1016/j.actaastro.2023.07.002>, 928.

53 Alex S. Li, *Ruling Outer Space: Defining the Boundary and Determining Jurisdictional Authority*, 73 *Okla. L. Rev.* 711 (2021). 717.

54 Outer Space Treaty, see note 33.

55 Opened for signature Dec. 18, 1979, 1363 U.N.T.S. 22.

56 Wedenig, Stefan-Michael and Nelson, Jack Wright, *The Moon Agreement: Hanging by a Thread?* (January 26, 2023). McGill SGI Research Papers in Business, Finance, Law and Society Research Paper No. 2023-19, IASL Commentaries on Air and Space Law (www.mcgill.ca/iasl/commentaries), Forthcoming, Available at SSRN: <https://ssrn.com/abstract=4373605>. 2.

57 Goehring, John, *Why Isn't Outer Space a Global Commons?* (June 3, 2021). *Journal of National Security Law and Policy*, Vol 11:3, 573 (2021), Available at SSRN: <https://ssrn.com/abstract=3867606>. 1.

58 Gbenga Oduntan, “Imagine There Are No Possessions: Legal and Moral Basis of the Common Heritage Principle in Space Law,” *Globalization and Common Responsibilities of States*, May 15, 2017, 259–87, <https://doi.org/10.4324/9781315254135-10>, 261.

59 Gorove, “The Concept of Common Heritage of Mankind a Political, Moral or Legal Innovation”, Vol. 9 San Diego, (1996). For further positions stating the alleged indeterminacy of the CHM principle see also Williams, *op. cit.*, p. 144 and Joynes, “Legal Implications of the Common Heritage of Mankind”, *ICLQ*, 35 (1986) p. 190.

60 Gbenga Oduntan, *Imagine There Are No Possessions: Legal and Moral Basis of the Common Heritage Principle in Space Law*, 262.

61 Alex S. Li, *Ruling Outer Space: Defining the Boundary and Determining Jurisdictional Authority*, 716.

62 *Id.*

63 Outer Space Treaty, see note 33.

Despite the sense in which outer space's nature as a CHM created an initial barrier to jurisdictional claims by states, Article VI creates an explicit permission for regulation governance. In fact, some have suggested that by virtue of article VI "state authorization implicitly puts that entity within the jurisdiction of that state by giving it a minimum contact."⁶⁴ Therefore, not only does OST not hinder regulation, but instead it establishes national regulation as an international requirement. Moreover, CHM also reveals a conceptual parallel between cyber and outer space. In doing so it highlights an alternative path of outer space regulation.

4. Parallel Spaces: Cyber and Outer

The term space gives a shared character to the realms of cyber and outer space. The primary definition of space is a continuous area or expanse which is free, available, or unoccupied.⁶⁵ Even if this definition should not literally be applied in these contexts, they are both in some sense free expanses. Such has already been made clear regarding outer space; it is a realm too vast to be confined to a singular categorization or national sovereignty. It may not be as explicit but the same holds for cyberspace. According to researcher Anne-Sophie Martin, "Cyberspace includes all elements of online activity, and can be described as a digital world made up of computer networks in which people and computers co-exist"⁶⁶ In this sense, it is nearly all-encompassing of everything digital, vast enough to be called its own "world." Although cyberspace jurisprudence has not adopted the Common Heritage of Mankind Principle,⁶⁷ there is ample evidence to suggest that it could be considered a global common. For example, The UN Group of Governmental Experts (GGE) identified "the peaceful use of ICTs [information and communication technologies] for the common good of mankind."⁶⁸ More explicitly a NATO document referenced outer and cyber space both as domains of global commons.⁶⁹ Other military scholars have also characterized cyberspace as "the cyber domain is available to all nations and regarded as part of the global commons."⁷⁰

The similarities between outer and cyber space can also be found in other aspects, such as their commercial nature, hesitancy to militarize, obstacles for monitoring, and limited international governance.⁷¹ Most importantly they are both systems that are deeply entrenched and widely connected through our economy and nation as a whole. In fact, the two spaces are nearly one and the same with the digitalization of space systems⁷² and the dependence on satellites for the transmission of cyber data.⁷³ The wide interdependence of cyber security has been recognized in the context of national security; despite cyberspace's clear criticality it is not considered a CI sector but is rather a part of the broader framework in which CI regulation takes place. A similar approach must be implemented for outer space. The author echoes past proposals "to avoid a compartmentalized strategy in relation to cyber and space domains."⁷⁴

64 P.J. Blount, "Jurisdiction in Outer Space: Challenges of Private Individuals in Space", (2007) 33 *Journal of Space Law*, 323.

65 *Space*, Oxford Languages (2024).

66 Dan Jerker B. Svantesson, "The New Phenomenon of Cyber Law", in *Air Law, Space Law, Cyber Law – the Institute of Air and Space Law at Age 90*, ed. Stephan Hobe (Köln: Carl Heymanns Verlag, 2016), 123–135.
Sourced from Martin, *Outer Space, the Final Frontier of Cyberspace: Regulating Cybersecurity Issues in Two Interwoven Domains*, 2.

67 Antonio Segura-Serrano, "Internet Regulation and the Role of International Law," *Max Planck Yearbook of United Nations Law Online* 10, no. 1 (June 1, 2006): 191–272, <https://doi.org/10.1163/138946306783559931>. 255.

68 United Nations, General Assembly, "Group of Governmental Experts on Developments in the Field of Information and Telecommunications in the Context of International Security," A/70/174 (22 July 2015), para. 12, <https://digitallibrary.un.org/record/799853?ln=en&v=pdf#files>. Sourced from Meyer, *Outer Space and Cyber Space: A Tale of Two Security Realms*, 7.

69 Mark Barrett, et al, *Assured Access to the Global Commons* (Norfolk: North Atlantic Treaty Organization, 2011), xii, http://www.alex11.org/wp-content/uploads/2013/01/aagc_finalreport_text.pdf. Sourced from Meyer, *Outer Space and Cyber Space: A Tale of Two Security Realms*, 7.

70 Ian K. Adam, "The Character of Conflict," in *Conflict and Cooperation in the Global Commons: A Comprehensive Approach for International Security*, ed. Scott Jasper (Washington: Georgetown University Press, 2012), 45. Sourced from Meyer, *Outer Space and Cyber Space: A Tale of Two Security Realms*, 7.

71 Paul Meyer, "Outer Space and Cyber Space: A Tale of Two Security Realms (SWP 51)," *International Cyber Norms: Legal, Policy & amp*, 2016, <https://summit.sfu.ca/item/16251>. 8-9.

72 1. Vijay Varadharajan and Neeraj Suri, "Security Challenges When Space Merges with Cyberspace," *Space Policy* 67 (February 2024): 101600, <https://doi.org/10.1016/j.spacepol.2023.101600>. 2.

73 Robert McCreight, "Gauging the Impact of Satellite & Space Systems on Critical Infrastructure[CI]: Risk Management is Neither an Enigma nor a Mystery for CI Systems Security" *Journal of Homeland Security and Emergency Management* 20, no. 2 (2023). <https://doi.org/10.1515/jhsem-2022-0054>. 200.

74 1. Anne-Sophie Martin, "Outer Space, the Final Frontier of Cyberspace: Regulating Cybersecurity Issues in Two Interwoven Domains," *Astropolitics* 21, no. 1 (January 2, 2023): 1–22, <https://doi.org/10.1080/14777622.2023.2195101>. 14.

5. Guiding Principles Of Space Regulation

Professor Kosseff suggests seven principles capable of guiding cybersecurity regulation:

1. **Informed:** Congress, regulatory agencies, executive branch officials, and courts must have a clear and current understanding of the technology and cybersecurity threats and potential solutions before they develop or modify legal rules.
2. **Clear:** To the greatest extent possible, the private sector must have a clear understanding of their requirements under cybersecurity law.
3. **Adaptive:** While some cybersecurity laws can include generalizable standards that are easily adaptable to new challenges, others simply fail to anticipate future technology and its cybersecurity impacts. In such cases, Congress should empower a regulatory agency to promulgate regulations that adapt to the new technological reality.
4. **Comprehensive:** Cybersecurity laws often are conflated with privacy laws, as there is significant overlap. Cybersecurity laws, however, must address more than just the confidentiality of personal information, and also seek to protect from unauthorized alteration of data and attacks such as ransomware that cause data or systems to become unavailable. Cybersecurity laws also must focus not just on financial harms, but any threats to national security or individual privacy or safety.
5. **Cohesive:** Companies currently face a web of requirements at the state levels, and many of these requirements conflict. Governments should attempt, to the greatest extent possible, to align the requirements nationally, in an effort to provide a clear regulatory framework.
6. **Global:** Just as it is necessary for a unified national policy, global coordination of cybersecurity regulations and incentives will help to improve the overall efficacy of fighting threats that do not adhere to traditional geographic borders.
7. **Collaborative:** A number of federal agencies specialize in cybersecurity. The experts in these agencies should work together, rather than in separate silos. These collaborative efforts should stress not only punitive measures, such as criminal enforcement and regulation, but also partnerships such as threat information sharing.⁷⁵

These principles are largely prescriptive as to the substance of regulatory policy and those insights can largely be carried over to outer space. However more critically, several of these principles also underline the descriptive framework that makes cyber security resolution possible.

5.1. Substantive principles

Professor Kosseff claims that regulatory policy must be informed, clear, and adaptive. Informed policies are “supported by science and are drafted by people who understand the underlying policy and technological issues.”⁷⁶ Seemingly this requirement is universally true. Uninformed policies tend to fail to accomplish their goals and often have unintended consequences.⁷⁷ Yet this necessity is worth highlighting because of the technical complexity of the cyber realm and the ensuing likelihood of uninformed policymakers. The same logic applies to outer space—a highly technical space rife with potential avenues of misunderstanding.⁷⁸ Similarly, the need for clear policies is a general rule—vague policy will incentivize actors to adopt the most minimal, and therefore cheapest, interpretations possible. In fact, some go as far as to

⁷⁵ Jeff Kosseff, “Hacking Cybersecurity Law,” *University of Illinois Law Review*, 2020, <http://dx.doi.org/10.2139/ssrn.3331350>. 814.

⁷⁶ *Id.* 819.

⁷⁷ See Generally Douglas Massey, “Uninformed Policies and Reactionary Politics: A Cautionary Tale from the United States,” in Christian Dustmann (ed.), *Migration: Economic Change, Social Challenge* (Oxford, 2015; online edn, Oxford Academic, 18 June 2015),

⁷⁸ Livingstone, *supra* note 16, at 21.

claim that if a minimal interpretation is to the shareholders' economic incentive, executives are obligated to uphold such an interpretation.⁷⁹ Eliminating that possibility with clear, unambiguous policies would help incentivize necessary security investments in both cyber and outer space. Lastly, the impetus for adaptive policy "capable of changing at the same pace as cybersecurity threats and defensive measures" is the technologically advanced nature of cyberspace.⁸⁰ Outer Space is similarly a realm dependent on constantly changing technological innovations; thus, the recommendation holds here too.⁸¹ While these are all admirable strategic principles that substantive regulatory policy should follow, they fail to address our procedural question as to the method of regulation.

5.2. Procedural principles

Professor Kosseff's requirement that cybersecurity policy be comprehensive is also substantive in nature. It is a call for policy to "address the full range of threats that the United States faces in cyberspace" in contrast to the currently myopic state of much of cybersecurity law.⁸² Yet this concern seems to parallel the primary concern inhibiting the institution of an outer space CI designation. Approaching regulation from a narrow lens will result in a narrowly defined policy that fails to grasp the full picture.

The key to addressing this issue comes in Professor Kosseff's next two principles. Space regulation must be collaborative and global. Cyberspace, like outer space, is under the domain of no one singular department.⁸³ Although Kosseff suggests that may be a suboptimal reality, he recognizes, as do others⁸⁴, the danger of centralizing regulatory power—namely that it will silo regulation in a way that will ultimately slow progress and discourage external involvement.⁸⁵ Thus, the patchwork of regulatory agencies, whether by design or bug, is a reality of both cyber and outer space regulation. This does not mean that regulation must or should be disjointed. The involvement of an abundance of agencies certainly risks the creation of redundant and conflicting policies.⁸⁶ However, a system of polycentric governance can help to ease these concerns. Kosseff, citing Scott Shackelford,⁸⁷ explains that polycentric governance is "a system of governance in which authorities from overlapping jurisdictions (or centers of authority) interact to determine the conditions under which these authorities, as well as the citizens subject to these jurisdictional units, are authorized to act as well as the constraints put upon their activities for public purposes."⁸⁸ The cooperation of the Space Force, CISA, the Department of Commerce, the Department of Transportation, NASA, and other agencies through a system of polycentric governance is key to successful outer space security policy.

Kosseff makes a similar point in stressing the need for cohesive policy between state of federal bodies.⁸⁹ In the realm of Outer Space, this is nominally true due to it being solely under the influence of federal legislation. On the other hand, Kosseff also stresses the need for a global coordination of cybersecurity policy, which is all the more true for outer space. Just as in cyberspace,⁹⁰ the most pervasive outer space security threats are likely to come from foreign entities. In particular John F. Plumb, assistant secretary of defense for space policy, has identified both China and Russia as serious

79 1. Daniel T. Ostas, "Corporate Counsel, Legal Loopholes, and the Ethics of Interpretation," *Texas Wesleyan Law Review* 18, no. 4 (July 2012): 703–15, <https://doi.org/10.37419/twlr.v18.i4.1>. 708.

80 Kosseff, *supra* note xx, at 828.

81 See generally, John Coykendall et al., "Riding the Exponential Growth in Space," *Deloitte Insights*, September 3, 2024, <https://www2.deloitte.com/us/en/insights/industry/aerospace-defense/future-of-space-economy.html>.

82 Kosseff, *supra* note xx, at 831.

83 The National Space Policy, 85 Fed. Reg. 81,765 (Dec. 16, 2020) (describing the variety of agencies involved in space regulations).

84 Suzanne Spaulding & Mieke Eoyang, *Bad Idea: Creating a U.S. Department of Cybersecurity*, DEFENSE360 (Dec. 13, 2018), <https://defense360.csis.org/bad-idea-creating-a-u-s-department-of-cybersecurity/>

85 Kosseff, *supra* note xx, at 847.

86 Gerardo Inzunza Higuera, *What Got Us Here, Won't Get Us There: Why U.S. Commercial Space Policy Must Lie in an Independent Regulatory Agency*, 73 *Hastings L.J.* 105 (2022). 112.

87 Scott Shackelford et al., *When Toasters Attack: A Polycentric Approach to Enhancing the "Security of Things"*, 2017 *U. ILL. L. REV.* 415, 419 n.20 (2017) (quoting Michael D. McGinnis, *An Introduction to IAD and the Language of the Ostrom Workshop: A Simple Guide to a Complex Framework*, 39 *POL'Y STUD. J.* 169, 171 (2011)).

88 Kosseff, *supra* note xx, at 848.

89 *Id.* 837.

90 *Id.* 841.

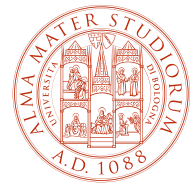


threats⁹¹ Therefore responding to outer space security threats must take place in a global arena. This is just another aspect in which outer space regulatory policy must be coordinated into a more unified body.

6. Conclusion

Space systems are undeniably critical to American society, and all societies for that matter. Security threats to such systems are a serious threat that must be dealt with the utmost caution. A breach in the security of space systems could lead to a total societal collapse. The traditional American approach to national security threats is through the heightened regulation allowed by the designation of an economic sector as Critical Infrastructure. Yet Outer Space possesses unique regulatory challenges because of its diverse and vast nature. Even defining its borders is an unresolved issue fraught with uncertainty. This concern makes CI designation unfeasible. However, Outer Space is not singular in its status as a highly critical yet opaque part of national security; cybersecurity presents a prime example of an approach to national security in the absence of CI designation. Thus, the utilization of a cybersecurity-like approach to national security in Outer Space is worth further consideration.

91 David Vergun, "Official Details Space-Based Threats and U.S. Countermeasures," U.S. Department of Defense, April 26, 2023, <https://www.defense.gov/News/News-Stories/Article/Article/3375577/official-details-space-based-threats-and-us-countermeasures/>.



Miscellaneous Material of Interest

Slot Regulation and the Maximization of the Capacity of the Airport Infrastructure: the Slots White Paper Published by IATA

Gilda Caso & Giulia Zucca

1964-2024: Tracing the Origins of a 60-Year Space Journey – The Luigi Broglio Space Center in Malindi (Kenya)

Luisa Santoro, Munzer Jahjah & Paolo D'Angelo

Book review: Civil Regulation of Autonomous Unmanned Aircraft Systems in Europe

Elena Orrù

Book review: Elgar Concise Encyclopedia of Space Law

Jakub Handrlica

Slot regulation and the maximization of the capacity of the airport infrastructure: the Slots White Paper published by IATA

Gilda Caso* & Giulia Zucca**

*As customer demand continues to rise, airports are becoming increasingly congested. Expanding infrastructure is the key solution, but political constraints make it unfeasible in many regions. In this context, where airport capacity is severely limited, the slot allocation process serves as a vital tool to maximize airport efficiency. Achieving this requires collaboration and compromise across the industry, as shown by the Worldwide Airport Slot Guidelines (WASG), established by the Worldwide Airport Slot Board (WASB), which includes airports, coordinators and airlines. Together with the International Air Transport Association (IATA), they have developed a **White Paper** to provide policymakers with the airline industry's perspective on the future development of slot policies.*

Introduction

An airport slot is defined as “a specific time on a particular day for which an airline is granted the right to plan its future operation”¹ allocated in advance by slot coordinators according to the Worldwide Airport Slot Guidelines (WASG). The issues related to slots and their allocation and management are directly dependent on the fact that they are a **scarce resource**, often in demand that exceeds supply, making them limited and in need of administration and governance.

Since the early 1960s, airport slots have been a crucial element in airline schedule planning and airport capacity management. It should be noted that not all airports are subject to slot coordination or classified as “Level 3”; only those facing capacity limitations are required to implement this system. To ensure greater certainty and improve customer service, Level 3 airports worldwide have adopted **the Calendar of Coordination Activities for slot coordination**, aiming to optimize the operational activities of all three key stakeholders described in the following paragraph.

1. The Three Key Players in Slot Planning

Each phase of the slot process operates effectively through the collaboration of three key parties: Airports, Slot Coordinators, and Airlines. Their roles and responsibilities are defined in the WASG and, in some countries, further regulated by legislation. Airports are responsible for delivering capacity in the operational phase, which is a critical role because under capacity reduces the airlines' ability to meet customer demand. Slot coordinators are responsible for refining the final airport schedule, ensuring maximum efficiency while considering infrastructure limitations. Meanwhile, airlines base their slot planning on network strategy, consumer demand, and fleet capabilities.

What is relevant is that all the stages require a dynamic approach, but it is equally necessary to ensure that the involvement of parties such as the coordinator is characterized by independence, impartiality, and transparent processes.

2. The operational issues arising from slot management and the attempts to mitigate them

As correctly observed in the White Paper, the imbalance between capacity and demand has tangible consequences in issues that have become critical for the industry, such as escalating delays, constrained networks and suboptimal schedules.

* Ph.D. Candidate, University of Bologna.

** Trainee at RPLT Law Firm, Italy, and LLM student in "Management and Regulation of the Aviation Industry" at the University of Messina.

1 Slot white Paper, Future Airport Slot Policies and airline Industry refocusing on slot: a global picture of slot policy

The need to overcome these issues has led to an intense planning activity by the airlines, which use increasingly sophisticated planning techniques, and to the development of guidelines that are intended to assist them in their efforts. One of the most significant set of guidelines is provided by IATA itself which, with the Airports Council International (“ACI”) and the Worldwide Airport Coordinators Group (“WWACG”), has developed and published the Worldwide Airport Slot Guidelines (“WASG”)².

The White Paper highlights how relevant these issues are, considering that IATA has classified over 200 airports as “Level 3” airports, which essentially are defined as airports with the following characteristics:

- a) demand for airport infrastructure significantly exceeds the airport’s capacity during the relevant period of time;
- b) expansion of airport infrastructure to meet demand is not possible in the short term;
- c) attempts to resolve the problem through voluntary schedule adjustments have failed or are ineffective;
- d) as a consequence of the above, there is a need for a process of slot allocation for all airlines and other aircraft operators, so that slots must be allocated by a coordinator to ensure arrival and departure at the airport during the periods when slot allocation occurs³.

In fact, the importance of slot allocation and the possibilities to create a more efficient systems through regulatory means have been discussed at length in the European Union, particularly in connection with the potential recast of the current regulation, the so called “*Slot Regulation*”⁴, introduced in 1993.

Discourse around the slots, considered scarce resources and potential barriers to market access, has been focused on possible inefficiencies created by the Regulation. It has been argued that the current system creates a scenario in which those that already have slots are incentivized to hold onto them, thus leading to phenomena such as “*slot hoarding*” and “*slot babysitting*”⁵, as well as to the creation of the secondary slot market⁶.

However, these issues are not exclusive to the European market and have been discussed in relation to other markets and to the global aviation market at large⁷.

These concerns are not specifically addressed in the White Paper. Even though it describes in general, as stated above, what the issues with slots allocation are and what kind of difficulties it can cause, the White Paper does not really dwell on the criticism towards the current system.

It simply describes in general what the IATA believes to still be the best and more efficient approach and does not specifically focus on concerns.

Consistently with the indications of the WASG, the White Paper describes the handling of the problem as two- pronged: on the one hand, there is the issue of slot allocation, and, on the other hand, that of schedule facilitation.

2 Airports Council International, International Air Transport Association, Worldwide Airport Coordinators Group. Worldwide airport slot guidelines (WASG). Montreal, Geneva, 2023.

3 Airports Council International, International Air Transport Association, Worldwide Airport Coordinators Group. Worldwide airport slot guidelines (WASG). Montreal, Geneva, Edition 3, 2023 pagina 20.

4 Council Regulation (EC) 95/93 of 18 January 1993 on common rules for the allocation of slots at Community airports [1993] OJ L14/1.

5 École Nationale de l’Aviation Civile, France: Nathalie Lenoir (2016) DIRECTORATE-GENERAL FOR INTERNAL POLICIES, POLICY DEPARTMENT B: STRUCTURAL AND COHESION POLICIES, TRANSPORT AND TOURISM Research for TRAN Committee – Airport slots and aircraft size at EU airports IN-DEPTH ANALYSIS, page 19.

6 Aras, T. (2022). Article 102 TFEU to the rescue: filling the legal gaps of the airport slot regulation. European Competition Journal, 18(3), 658–682. <https://doi.org/10.1080/17441056.2022.2128551>.

7 Dian Sheng, Zhi-Chun Li, Xiaowen Fu, Modeling the effects of airline slot hoarding behavior under the grandfather rights with use-it-or-lose-it rule, Transportation Research Part E: Logistics and Transportation Review, Volume 122, 2019, Pages 48-61, ISSN 1366 5545, <https://doi.org/10.1016/j.tre.2018.11.006>. See also, in reference to the US Market: Hideki Fukui, Do carriers abuse the slot system to inhibit airport capacity usage? Evidence from the US experience, Journal of Air Transport Management, Volume 24, 2012, Pages 1-6, ISSN 0969-6997, <https://doi.org/10.1016/j.jairtraman.2012.04.001>.



Slot allocation should be carried out through a process that is fair, transparent, pro-competition and efficient. As for schedule planning, the White Paper observes that it has a level of complexity that is not often well understood: oftentimes only its most basic aspect is considered, namely the need for compatible and complementary slots to match at each end of the route, whereas scheduling is actually much more complex, requiring careful management of the fleet availability and sustainability, access to airports and their infrastructures when and as needed, the granting of traffic rights and the related approvals, the retention of supplier of necessary third-party services and supervision over the crew and its flight time limitations.

IATA particularly enhances the need for coordination at the global level noting that, as aviation is a network industry, any uncoordinated and local approach could create issues for airlines and therefore consumers. In fact, it is the IATA's position that there are risks involved with the fact that certain areas of operational policy which are not included in the guidelines may be independently regulated by policymakers.

Consequently, the global utilization of the WASG is viewed as the optimal solution.

In line with this view that considers a homogenous and coherent approach the most important feature of the system, but, perhaps in contrast with current regulatory trends, IATA indicates an unfavorable view of any policy that would link slot allocation to the environmental performance of aircraft.

3. The links between airline economics and slot management

The issues with slot management are closely linked to airline economics and business models.

The White Paper briefly describes the main aspects of the market, starting from the fundamental slots of supply and demand to then describe the airline business models, elaborating on the differences between the hub-to-spoke model⁸ and point-to-point model⁹, slot planning, profitability and cost and investment management.

The first three sections contain an introduction to the basic features of the airline business.

The fourth section, concerning cost and investment, is of particular interest for the scope of the White Paper.

Air travel requires significant investments in infrastructure, starting from the aircraft, that represent the fundamental capital asset. The significance of the investments means that all decisions concerning the fleet, and more specifically whether to favour the acquisition of newer models or the maintenance of the older or whether to buy or lease¹⁰, have an incredible impact on profitability. Furthermore, airlines have to sustain other investments in hubs and, for cargo airlines, in storage and sorting facilities.

The high costs of investment, combined with high fixed costs for necessities such as fuel and personnel, is also the reason why the profitability of the industry is volatile and more vulnerable to economic downturns. In fact, after the initial investment, the fixed costs must continue to be paid, even where the profitable activities have been disrupted or halted, and the airline is unable to get revenues.

Starting from these premises, IATA makes the argument that reliable access to infrastructure and therefore to slots is not only necessary from an operational standpoint, but also for the financial sustainability of the airline business. This further substantiates the White Paper's main point concerning the need for reliable global slots rules.

⁸ The hub-and-spoke model is a system in which airlines operate flights from a central hub airport to multiple destinations. The hub airport serves as a central connecting point for passengers and cargo traveling to different destinations. It is the model typically used by traditional air carriers.

⁹ The point-to-point model is a system in which airlines operate flights directly between two destinations without a central hub. This model is predominately used for airlines that operate short-haul flights between nearby destinations.

¹⁰ The White Paper indicates that currently around 50% of the global fleet of aircraft are leased by airlines.



4. Forecasting New Strategies for the Future Slot Management System

The White Paper concludes by proposing a series of recommendations to improve and innovate the airport slot policy, based on a collaborative approach between airports, coordinators, and airlines, with the aim of optimizing airport capacity utilization.

Among its key suggestions are improving the management of seasonal capacity declarations to ensure that airports adapt to changes in market demand. Additionally, the White Paper advocates for strengthening airport accountability, enhancing performance monitoring, and introducing alternative dispute resolution mechanisms for coordinator decisions to reduce costs and time associated with current legal actions.

Furthermore, the White Paper calls for a reevaluation of policies governing access to congested airports, aiming to foster competition, network efficiency, and customer service. It emphasizes the need for dynamic slot allocation, with waiting lists managed according to demand and airline requirements to promote competition and route development.

Given the above, the central “*Vision*” for the future of slots allocation are the following four fundamental values, all centered around the “customer”:

consistency efficiency
transparency
stability

In describing these core points and in the reasoning leading up to their enumeration, the White Paper stresses once again the importance of a uniform and stable slot policy, enumerating all the advantages that it provides to airlines and, ultimately, customers.

5. Conclusions

To address growing demand and limited expansion opportunities, the *IATA Slots White Paper* underlines the crucial role of efficient slot allocation in optimizing airport infrastructure capacity. However, it does not critically examine inefficiencies such as “*slot hoarding*” or secondary slot markets. From IATA’s perspective, the global adoption of the WASG represents the optimal solution, while firmly opposing any connection between slot allocation and the environmental performance of aircraft. After analyzing the airline business model, the White Paper also points out that reliable access to infrastructure, and thus to slots, is not only vital for operational efficiency but also for the **financial sustainability of the airline industry**.

The White Paper calls for slot policy to remain focused on customer needs, while also preserving principles such as competition, transparency, and stability. Given the evolving nature of the aviation industry, slot regulation must continue to develop, ensuring that it supports the growth and competitiveness of the global air transport network.

1964-2024: Tracing the Origins of a 60-Year Space Journey – The Luigi Broglio Space Center in Malindi (Kenya)

Luisa Santoro*, Munzer Jahjah**, Paolo D'Angelo***

Abstract

The Luigi Broglio Space Center-BSC in Malindi (Kenya) is the space base that in the '60s of the XX century - when the escalation of the Cold War quickly transformed space into a place in which to demonstrate one Country's technological, military and political superiority - allowed Kenya to start its space journey and Italy to become the third power in the world to penetrate space by fully controlling launch operations, as highlighted by US President Lyndon B. Johnson in the congratulatory message he sent to the Italian government the day after its first space launch.

Such success was the result of the so-called San Marco project, conceived, developed and implemented by Professor Luigi Broglio, in collaboration with the Kenyan government, the Italian Air Force and NASA.

This article explains how the BSC – that was initially used as a base for launching rockets and satellites -, today is expected to become a training and education hub not only for Kenya but for all the African countries, so as to support the development of the entire African region's economy and security, in the framework of a long-standing collaboration with Italy that is still more vibrant than ever.

1. Introduction

Only insiders know that the Kenyan town on Malindi Bay called “Malindi” and famous worldwide as an exotic tourist destination in south-eastern Kenya - on a coast dotted with fascinating hotels and resorts -, has also been home to a space Centre for about sixty years, i.e. the Luigi Broglio Malindi Space Centre - or “BSC” -, thanks to an Agreement “*signed between the Royal Technical College of Nairobi (now the University of Nairobi) and the University of Rome on behalf of their respective Governments*”¹. The Agreement was ratified by the two Countries in 1964 and renewed in 1987, 1995 and 2012. More recently, in 2016, Kenya and Italy signed the latest version of the Agreement, ratifying it thereafter.

The Italian Space Agency (Agenzia Spaziale Italiana-ASI) has been managing the Centre since 2004. As a matter of fact, representing an ideal site for space launching and ground-based satellite monitoring activities thanks to its position south of the equator, “*where the earth spinning gives the maximum contribution to the due-East launches while the equatorial position allows to achieve any orbit inclination (from equatorial to polar)*”², the BSC was the first satellite station for Italy and Kenya, that from there, between 1967 and 1988, performed a total of 27 launches, out of which 9 orbital ones (1 for the UK, 4 for Italy and 4 for the US); whereas the rest were launches of sounding rockets

The opinions expressed in this article are purely the views of the authors, and thus may not in any circumstances be regarded as an official position of the institution they belong to.

* Head the Bi- and Multi-lateral Relations with EU Countries Sector, International Affairs Directorate - Italian Space Agency

** Head of Malindi - Kenya Base “Luigi Broglio” Space Center (BSC) - Italian Space Agency

*** Digital Newsroom, Institutional Communication and External Relations Directorate – Italian Space Agency

1 Report of the Departmental Committee on Defense and Foreign Relations on the Consideration of the Agreement between the Government of the Republic of Kenya and the Government of the Italian Republic on the Luigi Broglio-Malindi Space Centre (http://www.parliament.go.ke/sites/default/files/2019-07/REPORT%20OF%20THE%20DC%20DEFENCE%20ON%20THE%20AGREEMENT%20BETWEEN%20KENYA%20AND%20ITALY%20ON%20THE%20MALINDI%20SPACE%20CENTRE_compressed.pdf).

2 <https://web.archive.org/web/19970217182854/http://crpsm.psm.uniroma1.it/htmldocs/smarco-det.html>.

2. Tracing the origins of a 60-year space journey

The Italian chapter

The origins of the Italian space journey date back to the '50s of the XX century, when the escalation of the Cold War quickly transformed space into a place in which to demonstrate one Country's technological, military and political superiority³. Indeed, when on 4 October 1957, as part of its national space program, the Soviet Union launched into (an elliptical low-Earth) orbit Sputnik 1 - the first ever artificial satellite in space - the United States started trying to respond appropriately to a challenge that ultimately involved two opposing societal models. At the same time, Europe began looking for its own role, analysing a multitude of national objectives and interests that sometimes were difficult to reconcile; and Italy - which was animated by a recovery driving force that in a short time changed the face of the nation⁴ - followed the same direction by supporting the efforts of courageous men capable and ready to take the risks resulting from new modern adventures.

That was the context in which professor Luigi Broglio's space dream or "*African adventure*"⁵ gradually came true.

Luigi Broglio was born in Mestre (Venice) on 11 November 1911 and lived most of his life in Rome. After completing his high-school studies and obtaining his degree in civil engineering in 1934, he participated in a selection for engineers at the Regia Aeronautica, in which he was incorporated with the rank of *lieutenant*, assigned to the Centro Studi ed Esperienze of the Armed Force in Guidonia (Rome).

In 1951, the US Air Force Scientific Research Office asked the Italian Government to authorise a collaboration with Broglio, so that a fruitful period of cooperation with the U.S. began, thanks to which prof. Broglio built - first ever in Italy⁶ - a supersonic Mach 4 wind tunnel at the School of Aeronautical Engineering of the University of Rome La Sapienza, where, in the meantime, he had been appointed as Dean in 1952.

In 1956 the Secretary General of the Air Force tasked him with studies on rockets, paving the way for aerospace activities which, the following year, received great attention thanks to the launch into orbit of Sputnik 1 by the USSR. Even in that sector, that was completely new to him, prof. Broglio obtained outstanding results, giving life to a research program in the upper atmosphere and establishing a small launch base in Sardinia⁷.

From that modest infrastructure, built with limited resources and great organizational ability, prof. Broglio carried out a research campaign based on the use of American carriers like Nike Asp, Nike Cajun and Nike Apache. Such successful series of missile experiments - combined with the contribution of Italian physicist Edoardo Amaldi - allowed him, in February 1961, to propose to the Italian Government the ambitious project of putting into orbit an all-Italian artificial satellite from an all-Italian launch base.

The idea was favorably received, so that, having obtained the first unofficial support from the Italian Government and NASA, as well as from the National Research Council of Italy (CNR)⁸ and the Italian Air Force, prof. Broglio and his team began developing the first phases of the Italian space program. Firstly, they identified a former oil extraction platform - provided by ENI (Ente Nazionale Idrocarburi) - as the best solution for setting up a launch base; secondly, they decided to

3 G. Caprara "Storia Italiana dello Spazio", 2012.

4 Ib.

5 Ib.

6 Prof. Luigi Broglio established several aerospace records: first jet engine aircraft made in Italy, first Mach 4 wind tunnel in Italy, first supersonic wind tunnel in Europe, first research group in Europe to deal with swept wings, first European space simulator, first research group in Europe to deal with the warming caused by re-entry into the atmosphere, first equatorial polygon in the world, first polygon from which to launch into direct equatorial orbit, first satellite in the world launched from a non-Soviet, nor American base, first European country to launch its own satellite, first local measurement of the characteristics of the atmosphere at very high altitudes, launch of the first satellite entirely dedicated to radio astronomy (Uhuru), largest remote sensing station on the African continent, first country to launch on behalf of the USA, "best launch team of the year" by NASA to the San Marco technicians in 1971 (<https://www.romadue-broglio.eu/luigi-broglio-progetto-san-marco/biografia/>).

7 https://www.esa.int/esapub/hsr/HSR_30.pdf

8 On 16 July 1959, with resolution 885, the Presidential Council of CNR established the "Commission for space research", guaranteeing support to the program (<https://almanacco.cnr.it/articolo/3949/l-italia-e-il-cnr-negli-anni-della-corsa-allo-spazio>).



place it off the coast of Malindi, in Kenya. Such solution – so risky at that time, since no one in the world had yet launched a rocket from an oceanic platform - was chosen after evaluating other sites (in Sardinia, Brazil and Somalia) that, however - in the midst of the Cold War -, had not proved to be viable, even for geopolitical reasons.

While the definition of the so-called “San Marco”⁹ project approached completion, in 1963 a special law was passed in Italy, which allowed the implementation of a program aimed at putting into orbit an Italian satellite with the support of the USA. In the following months, the CNR Presidential and Administrative Councils approved financial and organizational support, as well as ad-hoc allocations of resources¹⁰.

So, under prof. Broglio’s leadership, a very complex program was developed in record time and implemented according to a rigorous schedule: the formal conclusion of a specific Memorandum of Understanding-MoU, with NASA - for the transfer of a carrier (a four-stage Scout missile) – and with the government of Kenya; the development of the design of the “San Marco” satellite; the creation of a missile base, obtained by adapting two pontoons for marine oil drilling, positioning them off the coast of Kenya; and, finally, the training, in Wallops Island (USA), of Italian technicians, who, from there, on 15 December 1964¹¹ launched and positioned into orbit the San Marco 1 satellite. As highlighted by US President Lyndon B. Johnson in the congratulatory message he sent to the Italian government the day after the launch “A SIGNIFICANT milestone in cooperative international space efforts was achieved yesterday with the successful launching of the Italian San Marco satellite. This marks the first time a launch crew of any nation other than the United States or the Soviet Union has put its own scientific payload into orbit.”¹².

The San Marco platform, however, could not be operational before 1967, due to some instability in the new government of Kenya, a Country that had just gained independence. Which had meant that, in order to launch the Italian satellite, the plan had to be slightly revised, so that the San Marco 1 satellite would be launched with an American Scout carrier from the Wallops Island base and, afterwards, a new Italian satellite – San Marco 2 - would be finally launched - again with a Scout rocket - from the platform in Kenya. In exchange for the scientific results of the Italian satellite and in addition to the vector, NASA provided the Italian technicians with all the training necessary to be able to manage the required launching operations.

For the subsequent missions of the San Marco project, the “Progetto San Marco Research Center” (CRPSM) was established at the University of Rome La Sapienza, while, in February 1964, the operational base of Malindi was set up - today called “Luigi Broglio” - Malindi Space Center: “It consisted of: the platform Santa Rita to be used as launching pad; the ship Pegasus, anchored about 300 metres from the Santa Rita, that carried the instruments necessary for the remote control of the space vehicle, the telemetry stations and the firing range control system; a system of underwater cables for communications and a logistics support ship for the personnel.”¹³ The Santa Rita¹⁴ platform had been modified by Cantieri Navali in Taranto and then dragged from there to Mombasa. Later on, the United States donated a platform to Italy that had been used by the American army as a rapid-docking facility. It was called “San Marco” and, after having arrived at La Spezia (Italy), it was modified, dragged to Mombasa and, finally, installed into the equatorial launching base, at a distance of about 600 metres from the Santa Rita one. Such platform was used for launching satellites, while the Santa Rita one was used for control activities and as headquarters for the personnel.

In 1967 the first launch was performed from the San Marco platform, and the last one - the 27th - in 1988. In May 1988 the Italian Space Agency was established.

9 Saint Mark is the patron saint of both Venice and sailors.

10 Ib.

11 The satellite successfully departed at 20:24 UTC with a Scout vector. San Marco 1 was a sphere 115 kg in mass and 66 cm in diameter. The satellite worked well, provided various scientific results and prompted the development of the San Marco Programme.

12 <https://www.presidency.ucsb.edu/documents/statement-the-president-the-launching-the-italian-san-marco-satellite>

13 https://www.esa.int/esapub/hsr/HSR_30.pdf

14 “St. Rita happens to be the patron saint of the impossible” (<https://catholicreview.org/get-to-know-st-rita-a-saint-for-impossible-situations/>).

The Kenyan chapter

Kenya's space journey dates back to the establishment of the BSC in the 1960s, in collaboration with Italy, according to a winning model of virtuous cooperation proving to be extremely beneficial for the economic, social and industrial development of the Country, but also of the region and, potentially, of the entire African continent.

Afterwards, Kenya also built *"the Longonot Earth Station which became operational in 1970 and provided international satellite communications to the entire East African Community"*¹⁵ as well as additional Earth stations in Kericho and Nairobi, including submarine cables for international communications, so that on 12th December 1970, the *"Uhuru"*¹⁶ Small Astronomical Satellite 1 - specifically designed for X-ray astronomy - was launched from the San Marco Platform in Malindi.

Later, in 2009, the National Space Secretariat (NSS) was established, laying the foundations for the establishment of the Kenya Space Agency, which was formed in 2017, with the mandate to pursue socio-economic objectives through space science, technology and related applications *"as key drivers for development in tandem with the national aspirations, political, social and economic goals"*¹⁷.



Fig. 1: the S. Rita platform
Credit: Sapienza University of Rome¹⁸



Fig. 2: the S. Marco platform
Credit: Associazione Arma Aeronautica Sezione Roma 2 Luigi Broglio¹⁹

3. Space activities at the Luigi Broglio Space Centre

Today, the Italy-Kenya cooperation at the Centre is regulated by an intergovernmental agreement signed – as said - in 2016 and entered into force on 16 December 2020, with a duration of 15 years. The Agreement includes 5 thematic protocols on: access to earth observation (EO) and space science data; the establishment of a Regional Centre for EO; telemedicine; support to the Kenya Space Agency; education and training activities.

¹⁵ Kenya Space Agency Strategic Plan 2020-2025 (https://ksa.go.ke/assets/files/KSA_POPULAR_VERSION_October_Compressed.pdf).

¹⁶ "Uhuru is a Swahili term meaning freedom or independence. Uhuru is often used to describe the freedom of a country to govern itself" (<https://www.dictionary.com/browse/uhuru>).

¹⁷ Kenya Space Agency Strategic Plan 2020-2025 (https://ksa.go.ke/assets/files/KSA_POPULAR_VERSION_October_Compressed.pdf).

¹⁸ <https://web.archive.org/web/19970217174742/http://crpsm.psm.uniroma1.it/html/docs/album-pictures/srita1.jpg>

¹⁹ <https://www.spacevoyaging.com/insights/2023/10/20/san-marco-how-italy-reached-orbit-for-the-first-time/>



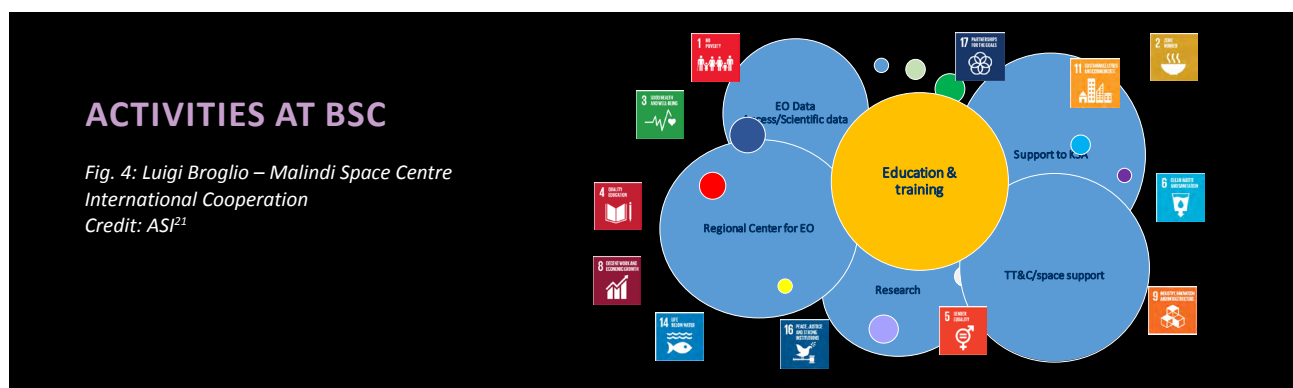
Fig. 3: the Luigi Broglio - Malindi Space Centre
Photo credit: Italian Space Agency

In addition to tracking international satellites (for NASA, ESA, the Israel Space Agency, etc), the Centre²⁰ also supports launching activities and scientific missions, as well as remote sensing image acquisition and processing activities for Central and Eastern Africa. The Ground segment, infacts, includes a Mission Control Centre, an acquisition system, a data archive & distribution system; and a Communication network, with space images accessible to the Kenyan research community and government bodies, too.

The Centre also boasts unique expertise in the fields of research, engineering, logistics and public & private administration, as well as education and training activities for African students and young researchers, in order to provide them with the tools necessary to actively contribute to scientific research on space-related topics and sciences in their home Countries, for an African generation of leaders, capable of supporting and guiding the sustainable and peaceful development of the African continent, in line with the objectives set by the “Agenda 2063 – The Africa we want” of the African Union and by the UN 2030 Agenda.

Just as an ex., here follows a not exhaustive list of higher-education activities conducted so far at the BSC:

- a training course for the installation, testing and operation of an Earth observation antenna;
- a “Train the trainer” course related to the Copernicus program – Working Group for Africa;
- testing and data acquisition activities related to the Cubesat SIMBA - IKUNS 3 research project;
- research activities in the framework of the EQUO project (Equatorial Observatory);
- in collaboration with the Kenya Space Agency, the University of Pwani-Kenya, INGV (National Institute of Geophysics & Volcanology, Italy), ICTP (Abdus Salam International Centre for Theoretical Physics - Italy) and UN-OOSA, an International Capacity Building Workshop on Space Weather and Low-latitude Ionosphere.



²⁰ <https://www.asi.it/en/the-agency/the-space-centers/luigi-broglio-space-center/> and <https://www.asitv.it/media/v/1edc2794-81d8-6242-84c4-5b1df3fbc620/luigi-broglio-malindi-space-center>

²¹ https://www.unoosa.org/documents/pdf/copuos/2023/TPs/JAHJAH-Italy-Presentation_Copous_3.pdf

4. The space journeys continue

Today *“the Center’s core business is the reception of satellite and telemetry data and the tracking of carriers or other space objects. This makes the Broglio Space Center an important hub in the cooperation network with other countries and space agencies, such as NASA, the European (ESA), French (CNES), Argentine (CONAE) space agencies, the Kenyan Space Agency and those of other African countries, as well as commercial operators, such as SpaceX.”*²².

The cooperation in space with Kenya gained further impetus thanks to the state visit by the President of the Italian Republic, Sergio Mattarella in 2023, when, from 13 to 16 March, he visited the Country in order to strengthen economic collaboration with Italy, also underlining the need to fight climate change, as well as the need for a steady collaboration in space. In particular, on 15 March, President Mattarella visited the Luigi Broglio - Malindi Space Centre, where he was welcomed by the President of the Italian Space Agency and his delegation, by Italian Ambassador Roberto Natali, and, on the Kenyan side, by Defense Minister Aden Bare Duale and the Chairman of the Kenya Space Agency-KSA Board of Directors, Major General (Rtd) James Aruasa.

In his speech at the BSC, President Mattarella recalled the two Countries’ long-standing dialogue in the space field, praising Luigi Broglio’s precious work in identifying Italy’s projection towards outer space from a scientific and collaborative perspective open to all peoples worldwide, underlining that collaboration in science should remain central and compliant with the principles of the Outer Space Treaty (OST) adopted in 1967, according to that particular form of globalism that has always characterized space exploration, for a sustainable future. A future focused on cooperation between nations that share interests and destinies and, above all, that do not act just on the basis of economic objectives, but also of strategic ones. In this sense the space sector, once again, assumes a strategic connotation for the national priorities of both Italy and Kenya, especially considering the exponential growth of the new space economy sector, in which Italy is undoubtedly playing a leading role, both at the national and international level.

More recently, attending the Italy-Africa Space Conference held last July, Senator Adolfo Urso - the Minister of Business and Made in Italy - said that the revitalisation of the Malindi base will definitively benefit the entire African continent²³. The Malindi BSC, the Minister recalled, is the space base that allowed Italy to become the third power in the world to penetrate space²⁴; a centre that today is expected to become a training and education hub for all the African countries²⁵, according to a high-level roadmap - we would add - that is being implemented with determination. On 1 October 2024, indeed, the 2nd Council of Ministers Meeting was held at the Luigi Broglio Malindi Space Centre, co-chaired by Kenya’s Cabinet Secretary for Defence, Honourable Soipan Tuya, and Senator Urso. The discussion focused on *“furthering the execution of the bilateral agreement between Kenya and Italy regarding the Luigi Broglio Space Centre, a core mandate for the council. Honourable Tuya emphasised this facility’s crucial role in enhancing the relationship between the two countries”*²⁶. The two ministers also approved collaborative projects aimed at benefiting Kenya and the African continent as a whole. *“Over 60 years ago, Italy’s space adventure began here in Malindi. Today, we want to give a new mission to this base, which could become the training centre for space operators from African countries that have just established their continental space agency”*²⁷ Minister Urso underlined, consistently with the Italian Mattei Plan for Africa, in which space cooperation between Italy and Africa represents one of the pillars of the plan’s success, with the Luigi Broglio Malindi Space Centre at the core of the collaboration.

In turn, the President of the Italian Space Agency, prof. Teodoro Valente, emphasized that Italy is investing in the Centre in order to expand it with the creation of the headquarters of an International Space School and of a laboratory dedicated to training activities focusing on cubesats, in addition to the space museum that was inaugurated by the two Minis-

22 <https://www.asi.it/en/the-agency/the-space-centers/luigi-broglio-space-center/>

23 https://www.ilsole24ore.com/radiocor/nRC_15.07.2024_10.51_193

24 Ib.

25 ib

26 <https://spaceinafrica.com/2024/10/02/kenya-and-italy-strengthen-collaboration-on-the-luigi-broglio-space-centre/>

27 Ib.

ters on 1 October. As to the reactivation of launching activities from the existing platforms, such project - prof. Valente explained - would require very important (9-digit) investments, so that

*Fig. 5: The inauguration of the Luigi Broglio Space Museum.
Credit: Kenya Space Agency*



various options are presently under consideration²⁸, in the framework – we would add - of a long-standing collaboration between Kenya and Italy that is still - with no doubt – more vibrant than ever.

²⁸ <https://www.key4biz.it/spazio-valente-asi-il-piano-mattei-investe-nella-base-spaziale-per-lafrica/497890/>

Book review: Civil Regulation of Autonomous Unmanned Aircraft Systems in Europe

Elena Orrù*

The book *Civil Regulation of Autonomous Unmanned Aircraft Systems in Europe*, edited by Jacques Hartmann, Benjamyn I. Scott, Steven Truxal, Andrea Bertolini, and Anna Masutti, and published in 2024, offers an insightful and comprehensive analysis of the regime of autonomous UAS under regulatory and civil liability perspectives in some European jurisdictions, i.e., Belgium, Cyprus, Finland, France, Germany, Hungary, Italy, Poland, Romania, Slovenia, and the United Kingdom. The comparative analysis, though not involving all the European countries, particularly not all the EU Member States (which could be a feature worthy of improvement in a second edition, if any), provides a significant add-on value. In Chapter 2 Paola Monaco clearly explains the scientific approach undertaken by the Authors in this regard.

It is worth mentioning that this is the first systematic work specifically deepening this subject matter. The readability and usefulness of the book are provided not only by its coherent structure and easily understandable style but also by its practical approach. For this reason, its prospective readers could range from students to scholars, legal practitioners, policymakers, lawmakers, and regulators. Moreover, its availability in open access enhances its impact.

The book is structured into seventeen chapters. After an introduction to the book and its structure, provided by the editors, and the above-mentioned chapter on the comparative research method therein employed, the third, fourth, and fifth chapters, respectively by Benjamyn I. Scott and Jacques Hartmann, Steven Truxal and Benjamyn I. Scott, and Andrea Bertolini, move from the absence of a uniform regime of liability for UAS, in contract or in tort, both at the international and the EU level, for providing a common, upstream thread to the book.



The third chapter is aimed at reconstructing the existing legal framework, at the international level, of the air carrier's contractual liability, with the intent to ascertain whether the 1999 Montreal Convention for the Unification of Certain Rules for International Carriage by Air, the 1952 Rome Convention on Damage Caused by Foreign Aircraft to Third Parties, and the relevant EU law, or at least some of their provisions, could apply to UAS. The chapter concludes by identifying and discussing the critical issues these international instruments pose and the frictions that exist among the existing national laws.

The fourth chapter is devoted to laying down the regulation of UAS and their operation in the EU. Conveniently, the analysis clarifies the technical terminology employed in different sources, then delves into the rules applying to UAS, considering their various categories and explaining the development of the relevant regulations. The chapter is very detailed but accessible for readers despite the technicalities characterizing its subject matter.

The following chapter considers the recently approved AI Act and the reformed PLD to examine the EU regime applicable to liability arising from using AI and assess its possible impact on UAS. It is discussed whether the definition of

* Associate Professor of Navigation and Transport Law, Department of Legal Studies, Alma Mater Studiorum University of Bologna.



an AI system could encompass UAS and whether the latter could fall within the scope of the revised PLD. Furthermore, the analysis includes the proposed Directive on adapting non-contractual civil liability rules to artificial intelligence (AI Liability Directive) to investigate its possible relevance for UAS.

The following eleven chapters, by Kristiaan Bernauw, Michael Chatzipanagiotis, Lehi Langer, Mikko T. Huttunen, Katja H. Brecke, Balázs Tókey and Gábor Katjár, Andrea Trimarchi, Maria Dragun-Gertner, Agnieszka Kasprzak, and Zuzanna Pełowska-Dąbrowska, Adina-Nora Buciuman, Karmen Lutman, and George Leloudas, are devoted to the relevant national provisions. They have a straightforward approach and enjoy a common structure, focusing on fourteen main aspects, i.e., air law applicable to UAS; general governance; operational rules: General, beyond visual line of sight (BVLOS) and autonomous flight; domestic rules compatible with EU legislation; domestic rules no longer (fully) compatible with EU legislation; air traffic management and drone zones; licensing of remote pilots; authorization of operators; airworthiness and operation; enforcement; civil liability; general liability; negligence of operators and manufacturers; duty of care. This feature facilitates their comprehension and comparison of the different jurisdictions.

The book ends with the conclusions by the editors, that do not limit to brief concluding remarks but provide valuable considerations on the pertaining international provisions, the existing and proposed EU law, and the common threads and many differences among the jurisdictions examined in the previous chapters, along with the several challenges that currently need to be faced.

Book review: Elgar Concise Encyclopedia of Space Law

Jakub Handrlica*

Very recently, Edward Elgar Publishing launched a new series, Elgar Concise Encyclopedias in Law. This endeavour aims to provide an authoritative reference source and essential research destination for academics, practitioners, and law students. The *Elgar Concise Encyclopedia of Space Law*, published by Edward Elgar Publishing in 2025, represents one of the most novel additions to this series. As usual in this series, the *Elgar Concise Encyclopedia of Space Law* was edited by two leading international scholars in the field of space law – Professor Mahulena Hofmann from the University of Luxembourg, the Grand Duchy of Luxembourg and Dr. P. J. Blount from the Durham University, United Kingdom.

The *Elgar Concise Encyclopedia of Space Law* contains eighty-four entries, all of them written in the same pattern. The entries are divided into short chapters, which allows the reader to navigate the text easily. Also, each entry contains references to selected existing literature on the topic, which helps the reader orient towards further reading. The editors of the *Elgar Concise Encyclopedia of Space Law* were careful in the choice of the authors of respective entries. One person did not author more than one entry, which undeniably contributed to the diversity of the *Encyclopedia*. At the same time, the authors were chosen from a wide range of backgrounds (legal academia, international organisations, civil service, law practice) and various origins.

The composition of entries fully reflects actual developments in space law. While many entries deal with major topics of international public law (such as the Artemis Accords by Brian D. Wessel, delimitation of outer space by Michal Dodge, disarmament and non-proliferation by Almudena A. Ortega, international humanitarian law in space by Jeremy Grunert and the non-appropriation principle by Antonio Salmeri), the *Encyclopedia* also addresses the current tendency in adopting national space acts in various countries. Thus, the *Encyclopedia* contains entries on national space legislation in Brazil (by Olavo de O Bittencourt Neto), China (by Xiaodan Wu), France (by Philippe Clerc), India (by Ranjana Kaul), Japan (by Yu Takeuchi), the Grand Duchy of Luxembourg (by Mahulena Hofmann), Nigeria (by Olusoji Nester John), Russian Federation (by Olga Volynskaya) and the USA (by Andrea J. Harrington). At the same time, the *Encyclopedia* also contains several entries on current topics, which are strongly connected with the New Space Era (or Space 4.0). This is the case for the entries on space resources (by Antonino Salmeri), space heritage (by Michelle LD Hanlon), and space tourism (by Michael Chatzipanagiotis). A distinctive entry, bearing the title “NewSpace and Law”, is also present in the *Encyclopedia* and was authored by Scott Schneider. One could argue that some of the entries, addressing topical issues in current space law, are absent. One will find neither an entry on space debris nor an entry on spaceports in the *Encyclopedia*. Nevertheless, I believe the editors made a rather clever choice of entries and covered the major problems of recent space law on 353 pages of the text. Also, the *Encyclopedia* contains a carefully prepared index, which makes orientation in the book much easier for a reader.

As the editors of the *Encyclopedia* admit in their introduction, the content of the entries reflects the realities of the years 2023 and 2024 when they were written. The authors of many entries also provide an outline of the most probable further developments in the analysed field. However, one may expect that the content of several entries will soon need an update – this applies especially to the entry on EU Space Legislation, where significant developments are to be awaited in the form of an EU Space Law. In the same vein, the entry on national space legislation in Brazil also became outdated, and a brand-new Act on National Space Activities (*Lei No. 14.946, de 31 de julho de 2024*) was adopted there. This underlines the fact that space law became a very dynamic field, which is subject to significant changes and developments.

At this place, I would like to recommend the newly published *Elgar Concise Encyclopedia of Space Law* to all academicians, practitioners and students with interest in space law. It can serve both as a reference book and as an introduction to the field of space law. It should not be absent in any university library where law is being taught as a subject.

* Full Professor at the Law School, Charles University in Prague, Czech Republic; Visiting Professor at the Interdisciplinary Research Center on Public Administration, University of Milan "Statale".



Events

The European Space Conference 2025, Brussels, 28-29 January 2025

Luisa Santoro

IBA, International Bar Association Annual Conference 2025

Toronto, 2–7 November 2025

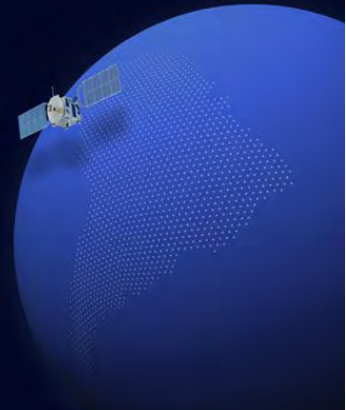
EALA, European Air Law Association Annual Conference 2025

Vienna, 7 November 2025

17th European Space Conference 2025

Luisa Santoro*

Brussels,
28-29 January 2025



Opened by European Commissioner for Defence and Space Andrius Kubilius and Director General of the European Space Agency-ESA Josef Aschbacher, the 17th edition of the European Space Conference - a reference event for debating on the challenges, prospects and ambitions of Europe in space - took place in Brussels on 28 and 29 January 2025, under the theme *“Consolidating Europe’s Space Ambition: Towards a Competitive, Secure, and Autonomous Future”*.

The Conference programme included plenary sessions, keynote speeches and dialogues with leading representatives of the European Union, Member States, ESA, national Space Agencies and European industry, who delved also into space-related key areas such as Earth observation, navigation and telecommunications.

More specifically, Commissioner Kubilius – who represented the EU along with European Union’s High Representative for Foreign Affairs and Security Policy Kaja Kallas, Executive Vice-President Henna Virkkunen, and Commissioners Ekaterina Zaharieva and Costas Kadić -, placed emphasis on nowadays game-changing role of space in Europe’s security, defense and economy, stressing the continent’s need for higher investments and unified action in order to create *“a European space shield”* and be able to tackle present and future challenges. He also referred to Galileo, Copernicus, and the upcoming IRIS² constellation as key examples of the EU’s best practices and results achieved in space so far, calling for further steps forward in the expansion of the European technological frontier. In addition, he underlined the need for increased competition in the sector, in collaboration with ESA and concluded his speech by recalling that *“Investment is key to realizing these ambitions. We must align public and private investments to support our space goals and ensure Europe’s space leadership continues to grow”*. Before concluding his speech, Commissioner Kubilius also said that the EU will strengthen its collaboration with Arianespace, a statement that was followed by the signature of a launch contract between the European Commission, the European Union Agency for the Space Programme (EUSPA) and Arianespace for the launch of the first second-generation Galileo satellites (L17) into orbit onboard an Ariane 6 rocket - with ESA as Launch Technical Authority.

Finally, the President of the Italian Space Agency-ASI, Teodoro Valente, also participated in the Conference and, in particular, in *“A Conversation between Heads of National Agencies”* panel, where he emphasized the strategic importance of space exploration as a driver of innovation, sustainability and international cooperation, underlining how Italy, with its long tradition in the sector, is committed to consolidating its role, both globally - through historic collaborations with partners such as NASA - and at the European level. Prof. Valente also highlighted the importance of balancing national priorities with international competition and cooperation, mentioning, as a relevant example, the IRIDE program, an excellent initiative developed in collaboration with ESA, which represents not only a strategic investment for Italy, but also a model of how European technical skills can be enhanced and systematized, thanks also to the Italian industry, that is playing a fundamental role in the development of the constellation.

For more information visit [HERE](#).

* Italian Space Agency - International Affairs Directorate, Head of Bi- and Multi-lateral Relations with EU Countries Sector.

IBA, International Bar Association Annual Conference 2025

Toronto (Canada),
2–7 November 2025



IBA 2025
METRO TORONTO CONVENTION CENTRE, 2–7 NOVEMBER



The **2025 IBA Annual Conference** will take place in **Toronto, Canada, from November 2 to 7, 2025**, bringing together legal professionals from around the world to discuss the latest issues and developments in the legal field.

The **Aviation Committee** will actively participate in the conference, contributing to discussions on some of the most pressing issues in aviation law. As part of the event, three dedicated aviation panels will take place.

On **November 3**, the **Litigation in Aviation Panel** will open the discussions, followed by two additional panels on **November 5**: the **Aircraft Financing Panel** and the **Latest Issues in Aviation Panel**. These sessions will feature **high-level speakers**, including legal experts, industry leaders, and regulatory representatives, offering valuable insights into the evolving aviation landscape.

Beyond the conference sessions, attendees will also have the opportunity to explore the city. On **November 4**, a special **offsite tour** will allow participants to discover Toronto's cultural, historical, and business landmarks, providing a unique chance to experience one of the most dynamic cities in the world.

European Air Law Association (EALA) 37th Annual Conference 2025

Vienna,
7 November 2025



The European Air Law Association (EALA) has officially announced that its **2025 Annual Conference** will take place in Vienna.

This prestigious event brings together leading professionals, academics, and experts in the field of aviation law to explore the latest legal developments, challenges, and opportunities in the aviation sector.

While the exact date, venue, and agenda are yet to be confirmed, further details will be released in the coming months.

For updates, please visit the official EALA website: www.eala.aero



aviationspacejournal.com