Criminal liability of pilots in aviation accident cases

Choi, J.

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Promotor:	prof. dr. P.M.J. Mendes de Leon
Co-promotor:	dr. F.P. Ölçer
Promotiecommissie:	prof. dr. S.J. Truxal dr. T.L. Masson-Zwaan prof. dr. J.H. Crijns prof. dr. A. Masutti (University of Bologna, Italy) prof. dr. F. Schubert (McGill University, Canada)

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Leiden, 2025

List of abbreviations and acronyms

AAIB	Air Accidents Investigation Branch/Aviation Accident Investigation Board
AIP	Aeronautical Information Publication
ALoSP	Acceptable level of safety
ANO	Air Navigation Order
ANS	Air Navigation Services
ATM	Air Traffic Management
ATPL	Air Transport Pilot License
BALPA	British Airline Pilots Associations
CFR	Code of Federal Regulations of the United States of America
CMA	Continuous Monitoring Approach
CPL	Commercial Pilot License
CPS	Crown Prosecution Service
ECHR	European Convention for the Protection of Human Rights and Fundamental Freedoms
ECtHR	European Court of Human Rights
EI	Effective Implementation
EU	European Union
Eurocontrol	European Organisation for the Safety of Air Navigation
FAA	Federal Aviation Administration
FOIA	Freedom of Information Act
IATA	International Air Transport Association
ICAN	International Commission for Air Navigation
ICAO	International Civil Aviation Organization
ICCPR	International Covenant on Civil and Political Rights
ICJ	International Court of Justice
IFALPA	International Federation of Air Line Pilots' Associations
MoU	Memorandum of Understanding
NTSB	National Transportation Safety Board of the United States

PANS	Procedures for Air Navigation Services
PANS-ATM	Procedures for Air Navigation Services-Air Traffic Management
PANS-OPS	Procedures for Air Navigation Services – Aircraft Operations
PIC	Pilot-in-command
PPL	Private Pilot License
PQ	Protocol Questions
ROK	Republic of Korea
SARPs	ICAO Standards and Recommended Practices
SMS	State Management System
SSP	State Safety Program
UK	United Kingdom
UKAAIB	UK Accident Investigation Board
UKCAA	UK Civil Aviation Authority
US	United States of America
USC	United States Code
USOAP	Universal Safety Oversight Audit Programme
VCLT	Vienna Convention on the Law of Treaties

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1 Research introduction

1.1 The purpose of this study

1.1.1 Purpose

This study's principal research question concerns the position, conduct, and potential liability of pilots in relation to incidents and accidents occurring in civil aviation.[1] Such liability may arise under a combination of international and domestic law. Despite this primary focus on pilots, this study acknowledges other actors who may be involved in aviation accidents, such as air traffic controllers, airport staff, and airline personnel.

This study seeks to analyse the complexity of the criminal air law framework and identify areas where tensions may arise among pertinent paradigms, namely, that of safety, transparency and legal certainty.[2] These tensions have implications for positive law frameworks that apply to pilots. However, this study does not aim to comprehensively test criminal air law provisions against a particular variant of the principle of legality, nor does it systematically or integrally assess (particular) criminal air law norms against this principle. Rather, the aim is therewith to identify wherein tensions can arise.

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1 Civil aviation pertains to aviation operations carried out by *civil* aircraft, excluding *State* aircraft, as to which see Article 3 of the Convention on International Civil Aviation (1944), referred to in footnote 5, below. In international air law, an accident is defined as "an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which: a) a person is fatally or seriously injured as a result of: — being in the aircraft, or — direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or — direct exposure to jet blast, except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or b) the aircraft sustains damage or structural failure which: — adversely affects the structural strength, performance or flight characteristics of the aircraft, and — would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or c) the aircraft is missing or is completely inaccessible. Incidents are identified as "an occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation." – *See*, Section 1.4.4 of this research.

2 For the definition of'criminal air law', please *see* Section 1.1.2.

Where relevant, this study refers to classical criminal law elements, such as subjective elements of offences, including diverse forms thereof, namely in the form of intent, negligence and recklessness. This is to illustrate points in the broader analysis of air law. However, it does not intend to evaluate the compatibility of criminal air law in detail or any particular legal system.

1.1.2 Defining pilot/aircraft commander

In international air law,[3] the pilot is the *principal* actor, and is as such *ultimately* responsible for navigating the aircraft safely. This position is reflected in various air law conventions and national legislation. Meanwhile, other actors are increasingly involved in enhancing safety in international civil aviation in order to prevent accidents and incidents.[4]

But, who is the pilot? A crucial step in this examination is to define 'pilot ' clearly, which is a task that proves more complex than may initially seem. The definition sets the stage for the rest of this research, framing the scope thereof and ensuring a focused analysis of the legal issues at hand.

In English, 'pilot' is "[a] person who flies an aircraft."[5] This may seem like a straightforward term. However, the International Civil Aviation Organization (ICAO), which is a pivotal entity in setting global safety regulations, has never provided a detailed technical definition of 'pilot', despite its usual practice of defining pertinent terms.[6] This omission results in a lack of clarity regarding who is a pilot under ICAO terminology.

This ambiguity regarding the person who can be identified as a pilot in the ICAO language has contributed to the use of alternative terms, such as 'aircraft commander'.[7] Therefore, to reduce potential confusion using various terms for the same position, this study addresses this gap by adopting a broad interpretation of 'pilot' to include any persons licensed under

3 By 'international air law', I refer to private and public international law that governs aviation.

4 *See also*, Section 1.1.3 of this research.

5 Cambridge University Press, 'Cambridge Dictionary – Entry to the Definition : Pilot' <https://dictionary.cambridge.org/dictionary/english/pilot> accessed 13 October 2024.

6 Section on ICAO in Section 1.8.1. Yet, ICAO defines 'aircraft' as "[a]ny machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface." It includes balloons, airships, gliders, kites, aeroplanes, rotorcrafts, and ornithopters. ICAO, Annex 7 – Nationality Marks (6th edn, ICAO 2012) 1 and 2.

7 For instance, the Convention on Offences and Certain Other Acts Committed on Board Aircraft of 1963 uses the term 'aircraft commander'. See, *Convention on Offences and Certain Acts Committed on Board Aircraft*, 14 September 1963 (Signed in Tokyo on 14 September 1963) (ICAO Doc 8364) [Tokyo Convention (1963)], arts 5-10.

Annex 1 to the Convention on International Civil Aviation,[8] hereinafter the 'Chicago Convention (1944)', who operate an aircraft, regardless of their nationalities.[9] This encompasses not just pilots in the general sense but also specific roles defined within the sector, such as:[10]

- *Pilot-in-command. The pilot designated by the operator, or in the case of general aviation,[11] the owner, as being in command and charged with the safe conduct of a flight;*
- *Pilot-in-command under supervision. Co-pilot performing, under the supervision of the pilot-in-command, the duties and functions of a pilot-in-command, in accordance with a method of supervision acceptable to the Licensing Authority; and*
- *Co-pilot. A licensed pilot serving in any piloting capacity other than as pilot-in-command but excluding a pilot who is on board the aircraft for the sole purpose of receiving flight instruction*.[12]

These definitions are rather broad. Under these definitions, there are other roles like cruise captain, pilot flying, or pilot monitoring where the roles can be combined with the defined category of 'pilots' above.[13] Still, the broader definition allows a comprehensive exploration of the nuances of criminal liability for *all* pilots in international civil aviation accidents and incidents, providing a clear lens through which to examine the intersection of aviation safety and criminal liability.

While obviously not ignoring the role of other actors responsible for maintaining and promoting the safety of international civil aviation and, thus, preventing accidents and incidents, this study focuses explicitly on pilots. Since aviation safety and operations involve a range of professionals, including air traffic controllers or maintenance personnel, this choice is made for several reasons.

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8 Convention on International Civil Aviation (Chicago Convention (1944) (Chicago, 7 Dec. 1944), entered into force 4 April 1947, as amended by 1175 U.N.T.S. 297, entered into force Oct. 1998.

9 ICAO, *Annex 1 – Personnel Licensing (13th edn, ICAO 2020).*

10 Hereinafter, any Annexes to the Chicago Convention (1944) are referred to as the "ICAO Annex(es)".

11 Defined by ICAO, general aviation means an "aircraft operation other than a commercial air transport operation or an aerial work operation." These operations include but are not limited to pilot training, business aviation, agriculture including crop spraying, emergency medical services, monitoring ground traffic movements from the air, civil search and rescue, law enforcement and fire-fighting, aerial survey work, aerial photography and flight demonstrations. *See* ICAO, *Annex 6 – Operation of Aircraft* (*12th edn*, 2022) Definition; SKYbrary, 'General Aviation (GA)' <https://skybrary.aero/articles/general-aviation-ga> accessed 13 October 2024. This concept reappears in Chapter 3 of this research.

12 ICAO, *Annex 1 – Personnel Licensing (13th edn, ICAO 2020)* 1-6.

13 *See*, Ham S, *A Research on the Duty of Care of Pilots and Air Traffic Controllers in Aviation – With a focus on Judgments Concerning Aircraft Accident* (PhD thesis, Korea Aerospace University 2012) 29. [Translation: JC].

Firstly, pilots play a direct and critical role in the operational control of an aircraft, positioning them uniquely in discussions of liability for in-flight incidents and accidents.

Secondly, the legal frameworks and case law regarding pilots' responsibilities and potential criminal liability are rich and complex, offering a substantive area for legal analysis.

Lastly, focusing on pilots allows for a detailed exploration of the specific challenges and considerations that arise in the context of 'criminal air law',[14] without diluting the study's focus across too broad a range of actors. The sections below delve more deeply into these points.

From the outset, I wish to address the complexity of criminal air law. This field merges two distinct areas: the multiplex and technical norms laid down in air law, which also encompasses provisions pertaining to criminal law on the one hand and criminal law itself, including all of its usual features on the other hand. That combination creates complexity in the substantive norms of criminal air law that eventually can give rise to the criminal liability of principally pilots (but also other actors). Important features of the aggregate substantive norms which arise in the combination of the two domains are the following:

- In the absence of an international mechanism for the prosecution thereof, air law crimes must ultimately be based on and be interpreted within the confines of national criminal law;
- Air law norms and rules are, however, mainly drawn up *internationally*, meaning that all special features of international law are also engaged, including the complexity of formulations in light of the involvement of myriad jurisdictions, variability in terms of their binding force under domestic law, and particular interpretation methods commonly employed with respect thereto;
- The norms and rules are moreover prepared by an international body, namely, ICAO, and are implemented by States pursuant to national procedures;
- More so than in other branches of law, including other fields of regulatory criminal law, air law norms are rather technical, which feature carries through into criminal offences;
- Air law crimes are driven by diverse paradigms, which are referred to in section 1.1.3 below and further defined in Chapter 2, amongst which tension can exist, particularly where those of air law versus the strict normative precepts of criminal law are concerned. The focus of this dissertation is on the substantive principle of legality, notably the postulate of legal certainty, in this latter regard.

14 *See* Sections 1.1.3 and 1.1.4 of this research.

The subsections within Section 1 below explain these features in more detail.

1.1.3 The complex interplay between pilots and safety

International civil aviation operates within a complex and dynamic environment,[15] traversing national borders and covering vast expanses of airspace.[16] Aircraft, characterised by their inherent speed and complexity, introduce a magnitude of risks to people on board and on the ground.[17] In this global and high-risk business, safety becomes paramount.[18] As evidenced by recent accidents involving the aircraft manufacturer Boeing Co. of the United States of America (US),[19] elements like technical, human, organisational, and systemic factors collectively contribute to the potential for accidents and incidents, which can endanger human lives and property.[20]

Positioned in the heart of the flight operation, pilots bear a substantial brunt of the responsibility for safely manoeuvring the aircraft. Recognised as the "frontline operators" or frontline professionals in the cockpit,[21] pilot performance is critical to safety. Their role places them directly in the nexus of operation, where they must employ advanced communication skills and quick decision-making.[22] This is especially crucial during long-haul intercontinental flights involving a team of pilots, cabin crew members, and passengers.[23] Despite the emergence of new technologies, such as automa-

15 ICAO, Report of *High-Level Safety Conference 2010 (Doc 9935, HLSC 2010)* (2010) ii-6.

16 These factors are the initial reason for technical standardisation in international civil aviation. *See* Sections 1.7 and 2.2 of this research.

17 ICAO, Report of *High-Level Safety Conference 2010 (Doc 9935, HLSC 2010)* (2010) ii-6.

18 *See* 2.2 of this research.

19 *See* the tragic accidents involving Lion Air in 2018, Ethiopian Air in 2019, and the mid-air blowout of an aircraft door of Alaska Airlines in 2024 in the National Transportation Safety Committee of Indonesia, 'Final-KNKT.18.10.35.04 Aircraft Accident Investigation Report PT. Lion Mentari Airlines Boeing 737-8 (MAX); PK-LQP, Tanjung Karawang, West Java, Republic of Indonesia, 29 October 2018' (2019); Ethiopian Aircraft Investigation Bureau, 'Aircraft Accident Investigation Report B737-MAX 8, ET-AVJ' (2022); National Transportation Safety Board, 'DCA24MA063 Aviation Investigation Preliminary Report' (2924).

20 *See* Chapter 2 of this research.

21 *See,* for instance, Regulation (EU) No 376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis and follow-up of occurrences in civil aviation, amending Regulation (EU) No 996/2010 of the European Parliament and of the Council and repealing Directive 2003/42/EC of the European Parliament and of the Council and Commission Regulations (EC) No 1321/2007 and (EC) No 1330/2007, Preamble (8); Schuite I and Scott S, 'Perceptions of just culture between pilots and managers: Evaluation of airlines in the EU, Middle East, and Asia/Pacific regions' (2021) 11(2) Aviation Psychology and Applied Human Factors 65, 67; Dekker S, 'Just Culture: Who Gets to Draw the Line?' (2009) 11(3) Cognition, Technology and Work 177, 178.

22 *See* Annex, Section 4.5 and Section 5.1.5 of this research.

23 Restellini J, *Labour Relations in Aviation* (Wolters Kluwer 2022) 24.

tion and autonomy, pilots are still indispensable.[24] Their "cumulative experiences" and hands-on expertise contribute to operational safety.[25]

Pilots are indeed identified as 'frontline operators' and are thus deemed to be principal actors in the context of accident and incident investigation. This study demonstrates that the – principal – position is complex because of the evolution of the safety paradigm in relation to the Safety Management System (SMS).[26] Under the SMS framework developed by ICAO, aircraft operators, aircraft maintenance organisations, air navigation services providers, and airport operators are *jointly* required to manage safety in international civil aviation by implementing the mentioned framework.[27] That said, the position, including the behaviour, of pilots is still extremely relevant in identifying causality in accident and incident investigations and in apportioning blame in the form of criminal liability. This work analyses the question of how pilot criminal liability can be established in an ever more multifaceted and complex safety regime in which they still play a crucial role. That is why this term ('pilots') is defined in Section 1.1.2.

It must also be emphasised that international civil aviation operates within a high-risk industry sector that is exposed to accidents and incidents. This inherent risk means that accidents and incidents do still occur, unfortunately.[28] Despite rigorous training and experience requirements,[29] the presence of pilots in the cockpit can be identified as 'hazards', with their

24 As described already in 1983, automation exists to "assist the pilot in flying the airplane by maintaining the aircraft heading and altitude and by relieving the pilot of the need to make continual small corrections." On the other hand, autonomy is "capable of making decisions independent of human control," "responsive to situations it was not designed for," and possessing "some authority to direct its own actions." *See* Cooling JE and Herbers PV, 'Considerations in Autopilot Litigation' (1983)48 Journal of Air Law and Commerce 693, 696; Lyons JB and others, 'Human-Autonomy Teaming: Definitions, Debates, and Directions' (2021) 12 Frontiers in Psychology.

25 While the development of autonomy and urban air mobility may diminish the current significance of pilots, the "cumulative experiences" remain crucial. The system must learn from the data and patterns, I believe, derived from human pilots' operational practices to achieve autonomous flight without human involvement. *See* Lyons JB and others, 'Human-Autonomy Teaming: Definitions, Debates, and Directions' 12 Frontiers in Psychology 1, 3; National Research Council of the National Academies, *Autonomy Research for Civil Aviation: Towards a New Era of Flight* (The National Academies Press 2014) 8.

26 *See* Sections 1.7.1.1 and 2.2.5.1 of this research.

27 *See* Section 1.7.1 of this research.

28 For technical definitions of the terms 'accidents' and 'incidents', *see* Section 1.4.4 of this research.

29 For example, to be employed by commercial airlines, a pilot must have at least 1.000 hours of experience to operate an aircraft after obtaining the relevant pilot license. Promotion to a PIC requires more than five years of experience as a co-pilot, 4,000 hours of aircraft operation, and over 350 take-off and landing experiences. *See,* KoreanAir, 'Pilot Recruitment Q&A' <https://koreanair.recruiter.co.kr/bbs/appsite/faq/list> accessed 13 October 2024.

actions posing 'safety risks'.[30] This categorisation is due to the recurrence of accidents and incidents involving pilot conduct, particularly in areas of decision-making and flight control, which have been on the rise since 2013, if not earlier. [31] Reports from the International Air Transport Association (IATA) consistently highlight pilot conduct as a risk factor.[32] However, the involvement of pilots in accidents and incidents is a natural consequence of their physical presence and active role in flight operations rather than an indication of inherent fault.[33]

When accidents and incidents occur, they are often subject to both technical and judicial investigations.[34] The goal of technical investigations is to uncover causes to prevent future events, while judicial investigations may assess civil or criminal liability, potentially leading to attributing blame.[35] Nonetheless, attributing accidents and incidents solely to pilot actions oversimplifies the complexity of flight operations.[36] Despite pilots' efforts, not all accidents can be prevented during the operation. The multifaceted nature of flight operations makes isolating the pilot's role challenging, yet the nature of piloting often predisposes them to blame in a legal context.

30 ICAO understands these terms from the aviation technical context. Hazard means a "condition or an object with the potential to cause or contribute to an aircraft incident or accident," and safety risk means the "predicted probability and severity of the consequences or outcomes of a hazard." Therefore, the presence of pilots is a hazard as a condition where the likelihood of the presence of a pilot causing harm is a risk. *See*, ICAO, *Safety Management Manual* (Doc 9859, 4th edn, 2018) Glossary.

31 IATA, 'IATA Annual Safety Report' <https://www.iata.org/en/publications/safety-report/> accessed 13 October 2024. IATA is the "trade association for the world's airlines, representing 320 airlines or 83% of total air traffic." *See*, IATA, 'About us' <https://www.iata.org/en/about/> accessed 13 October 2024.

32 IATA, 'IATA Annual Safety Report' <https://www.iata.org/en/publications/safety-report/> accessed 13 October 2024.

33 Yet, pilots do not always think that "pilot errors are one of the important causes of aviation accidents and incidents." According to the survey conducted in Chapter 5 of this study, a combined 57% of the respondents indicated they somewhat and strongly agreed with the statement, while about 23% still disagreed. 20% of the respondents neither agree nor disagree, which may emphasises the complexity of accident causation and also presents that pilot errors are influential but not the sole factor of the accident.

34 *See* Chapter 3 of this research.

35 In addition to these, there can also be disciplinary sanctions and insurance cases involved. For the term 'judicial investigation', in certain jurisdictions, like in the United Kingdom (UK), such a term is rarely, if not never used. Nevertheless, this study still refers to the term indicating any investigations conducted by judicial authorities to apportion blame, as referred to in ICAO Annex 13.

36 *See* Section 2.2 of this research.

Although differing in focus, these investigations concurrently examine various aspects of the same events.[37]

Isolating the pilot's role during investigations proves difficult, as their actions are intertwined with numerous other operational factors. This was exemplified by an accident in 1972, where four out of five immediate causes were linked to pilot actions, next to 'underlying causes' including the co-pilot performance, the working environment at the time of the accident, the training system, and the mechanical characteristics of the aircraft.[38] Pilots operate in a dynamic, confined environment that necessitates constant interaction with the hardware, environment, and other personnel, such as co-pilots and air traffic controllers.[39] Simplistic apportioning of blame to pilots alone is challenging.[40]

This background further inspires the principal focus of this research, which is the criminal liability of pilots.[41] It is a significant aspect of aviation safety.

1.1.4 Criminal liability of pilots – interactions of laws and paradigms

Criminal liability in aviation encompasses more than the specialised domain of air law. It also incorporates the foundational principles of general criminal law that underpin domestic legislation. This intersection presents a unique set of challenges, given the distinct objectives of criminal law, which include social control, morality, retribution, deterrence, incapacitation, and rehabilitation.[42] For these objectives to be met within the aviation domain, laws are required not only to be transparent, accessible and administered in the right manner but also to be tailored to address the specific characteris-

37 In 2013, an accident in China, which gave rise to criminal liability, reflected this exact point. The lawyer of the accused stated that "the accident was a collective conclusion out of various causes, and the technical investigation report contained 28 other causes, which included structural problems of the airport, the function of the aircraft and air traffic control." For more, *see* News Yeonhap, 'Chinese Court, Captain Sentenced 3 Years in Prison for Accident... First Criminal Punishment' *Kyungsang Ilbo (Korean Newspaper)* <http://www.ksilbo.co.kr/news/articleView.html?idxno=481382> accessed 13 October 2024; Griffiths J, 'Pilot Stands Trial over 2010 Henan Airlines Crash Which Killed 44' <http://www.thatsmags.com/china/post/2328/pilot-stands-trial-over-2010-henan-airlines-crash-which-killed-44> accessed 13 October 2024.

38 Department of Trade and Industry Accidents Investigation Branch, *Report of the Public Inquiry into the Causes and Circumstances of the Accident near Staines on 18 June 1972* (1973) 54-55.

39 The so-called SHELL model represents this aspect. *See*, Section 2.2.4 of this research.

40 ICAO, *Safety Management Manual* (Doc 9859, 4th edn, 2018), 2-3. *See also*, Bennun ME and McKellar G, 'Flying Safely, the Prosecution of Pilots, and the ICAO Chicago Convention: Some Comparative Perspectives' (2009) 74 Journal of Air Law and Commerce 737.

41 This study disregards the 'civil liability' of the pilot in terms of obliging the pilot to compensate for the damage incurred caused by an event in the course of carrying out his or her responsibilities as a pilot.

42 Allen MJ, *Textbook on Criminal Law* (3rd edn, Oxford University Press 2015) 7 and Hart Jr HM, 'The Aims of the Criminal Law' (1958) 23 Law and Contemporary Problems 401, 401.

tics of aviation. Therefore, the conduct of pilots, when it crosses boundaries, demands a clear legal framework. This feature gives rise to what can be termed 'criminal air law'. Criminal air law is a specialised domain that bridges the gap between the overarching principle of legality and the requirements under air law.

The legal framework regulating criminal liability of pilots' conduct presents the challenging intersection of international air law and domestic criminal law. This complexity stems from two primary legal sources. *Firstly*, the regulatory framework that defines potential criminal liability for pilots is predominantly international,[43] crafted by ICAO.[44] The specific framework calls for a sophisticated understanding of international law due to its unique binding force requiring complex interpretation and enforcement mechanisms. *Secondly*, the technical nature of air law, represented by the detailed and ever-evolving over 12,000 Standards and Recommended Practices (SARPs),[45] adds an additional layer of complexity, requiring expertise beyond that found in many other areas of law.

Moreover, the role of ICAO, alongside other international and private entities, in shaping SARPs is evidence of the complex balance between international guidance and national legal autonomy. This balance creates a varied legal landscape as States implement or integrate SARPs into the domestic legal systems differently, leading to jurisdictional discrepancies and challenges in uniformly regulating and adjudicating pilots' conduct.

The intersection of air and criminal law is governed by key paradigms such as safety as regulated by air law, demand for transparency both in a general sense and specifically within the realm of aviation, and the principle of legal certainty that is a cornerstone of criminal law.[46] While individually essential, these paradigms can clash due to their differing priorities and the demands of the normative framework of criminal law. Hence, it is difficult to formulate clear standards to navigate the complexities inherent in the criminal air legal sphere. Without testing against a particular variation of the principle of legality,[47] this study chooses to explore how complex the existing legal framework is through the tensions among paradigms.

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43 Section 1.8 of this research.

44 Sections 1.5 and 1.8.1 of this research.

45 ICAO Air Navigation Commission, 'How ICAO Develops Standards' <https://www.icao.int/about-icao/AirNavigationCommission/Pages/how-icao-develops-standards.aspx#:~:text=Today%2C%20ICAO%20manages%20over%2012%2C000,with%20latest%20developments%20and%20innovations.> accessed 13 October 2024. *See also*, Section 1.7.

46 *See* ICAO, *Manual on Protection of Safety Information Part I – Protection of Accident and Incident Investigation Records (Doc 10053)* (1st edn, 2016) Foreword.

47 A separate attempt is made in Chapter 5 of this study to present collective-subjective clarity.

1.1.5 Selected literature review

While the criminal liability of pilots within the realm of international air law has been a subject of scholarly investigation to varying extents, there has never been a comprehensive discussion that explores historical, theoretical, and practical perspectives. Especially, existing literature does not reflect on the complex conjunction of laws and paradigms affecting the criminal liability of pilots in the manner this research intends to utilise. Existing scholarly work, such as Dr Kamminga's examination of jurisdictional ambiguities under the Chicago Convention (1944) and Dr Honig's focus on State sovereignty, lays an important foundation by highlighting the legal challenges and uncertainties pilots face across international borders.[48] Dr Van Wijk's analysis further complements the foundation by revealing the disparities in legal approaches to the criminal liability of pilots and the scarcity of prosecution cases,[49] which is evidence of another challenge the criminal air law faces in terms of its rather fragmented nature. He ultimately advocates re-examining the criminal laws and regulations governing civil aviation to enhance safety and prevent accidents.[50]

However, despite these valuable contributions, a comprehensive synthesis that bridges these diverse strands of research to offer a nuanced multidi-

48 Dr Kamminga's exploration into the jurisdictional ambiguities presented by the Chicago Convention (1944) reveals the profound legal uncertainties aircraft commanders face concerning prosecution for in-flight offences, referring to Article 12 of the Chicago Convention (1944). Dr Kamminga, inspired by Prof. Cooper's proposals, advocates for a composite legal framework involving the State of Registry, State of Landing, and States flown over, pointing towards the need for a more coherent and integrated approach to jurisdiction. The term 'prosecution' is used in his writing, but not defined in art 12 of the Chicago Convention (1944). Dr Honig has also significantly contributed to the discourse, emphasising the sovereign rights of States over their airspace and the jurisdictional prerogatives to prosecute offences occurring aboard aircraft. Notably Yet, Dr Kamminga concludes that "under existing air law in many cases the aircraft commander is in a state of uncertainty as to whether, and if so where and under what law, he may be tried for a punishable offence committed by him." *See* Kamminga MS, *The Aircraft Commander in Commercial Air Transportation* (Martinus Nijhoff 1953) 76-80; Honig JP, *Legal Status of Aircraft* (PhD thesis, Leiden University 1956) 137; Cooper JC, 'A Study on the Legal Status of Aircraft' (Prepared for the Air Law Committee of International Law Association) (1949) Appendix A.

49 Dr Van Wijk's study on the criminal liability of pilots, based on Netherlands' Governmental Aviation Department accident reports and his insights as a pilot highlights the challenges in obtaining a clear understanding of criminal liability sanctions in civil aviation due to decentralized information storage. He noted the rarity of pilot prosecutions, a finding corroborated by Dr Kamminga. Furthermore, Dr Van Wijk observed that legal approaches to the criminal liability of pilots vary significantly across jurisdictions, indicating that a system applicable in one country, like the US, may not be suitable for another, such as the Netherlands. *See* Van Wijk AA, 'Aircraft Accident Inquiry in the Netherlands – A Comparative Study' (PhD thesis, Amsterdam University 1974) 9, 169, 189, 295.

50 Van Wijk AA, 'Aircraft Accident Inquiry in the Netherlands – A Comparative Study' (PhD thesis, Amsterdam University 1974) 169, 189.

mensional view remains absent. My study intends to fill this void by not only drawing upon the historical evolution and theoretical underpinnings of pilot criminal liability but also by integrating these insights with practical applications and implications of laws in the aviation sector. By doing so, it seeks to forge a new path in legal scholarship that could inform more coherent and effective policies and practices, thereby enhancing both aviation safety and legal certainty for pilots. In essence, this research aspires to transcend traditional legal analyses, venturing into uncharted territories to construct a holistic framework that addresses the multifaceted challenges of pilot criminal liability within the global aviation landscape.

1.1.6 Concluding remarks on the purpose of this study

To summarise, the criminal liability of pilots in aviation accident cases is a topic that is selected for this study for three reasons.

The *first* reason is that it is a highly relevant area in terms of the protection of safety, as pilot conduct remains one of the primary contributing factors to aviation accidents.[51]

Secondly, the present study involves an intersection of two distinctive branches of law: air law and criminal law. While air law governs aviation-related matters globally, criminal law is principally based on domestic regulations. It certainly is challenging to analyse how these two areas of laws coexist for a matter that is global but also locally governed, that is, aviation safety and criminal liability.

Thirdly, criminal liability is a less-researched topic in the history of aviation.[52] Only a limited number of publications discuss pilots' criminal liability. They focus mainly on jurisdiction and hence show that the substantive aspect of the criminal liability of pilots remains rather vague. These publications also point out that the conduct of pilots, in conjunction with its criminalisation, forms a subject that must be discussed through the lens of safety. Indeed, the protection of safety is the primary interest of the Chicago Convention (1944), which must be synchronised with criminal law in order to balance these interests: safety on the basis of the provisions of this Convention, in conjunction with ICAO SARPs, and justice on the basis of the application and enforcement of criminal laws.

The criminal liability of pilots is undoubtedly an area that requires further studies, according to the authors cited in this Section. That is where the present study comes in.

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51 IATA, *Safety Report 2019* (IATA 2020) 46; IATA, *Safety Report 2020* (IATA 2021) 44; Section 1.1.3 of this research.

52 Section 1.1.5 of this research.

1.2 Defining the research questions

Recognising the above, in this research, I seek to shed light on the intricacies of the criminal liability of pilots by analysing global air law regimes, State practice, and domestic legislation with respect to the criminal liability of pilots and case law evidencing the application of such regulations. Therefore, this study analyses pertinent legal sources (mentioned in the Section on Methodology, as to which see Section 1.3 of this Chapter below) to demonstrate how they (can) conjoin to create the basis for the criminal liability of pilots and how intricate such aggregate constructs can be, from a clarity perspective.

Through a comprehensive exploration of the legal interplay between the paradigms of safety, transparency and legal certainty, which affects the complex framework arising out of the totality of legal sources of my analysis, I aim to contribute to explaining the legal complexities occurring in international civil aviation, using (the circumscription) of the criminal liability of pilots as evidence of such complexities.

To achieve this goal, I intend to show how intricate the circumscription of criminal liability can be against the international treaty obligations that are alluded to in the following sub-sections and may be made applicable to international civil aviation.

In order to accomplish this aim, this study mainly seeks a response to the following question:

> "How do international and domestic legal systems regulate the criminal liability of pilots within the context of the paradigms of Safety, Transparency and Legal Certainty, and in what way can the coherence and clarity of these paradigms be enhanced?"

In order to find answers to the primary research question, the following sub-questions should be clarified and responded to.

- Why are the paradigms of Safety, Transparency and Legal Certainty relevant for the discussion of the primary research question, and how do each paradigm and their interaction influence the criminal liability of pilots?
- How do the existing international and domestic legal regimes define the criminal liability of pilots, and how are these regimes connected?
- To what extent is clarity achievable in international civil aviation?

In short, this study aims to establish the fine balance between the clarity of selected legal provisions, as explained in case law, and the promotion of safety.

1.3 Research methodology

1.3.1 Overview of the methodology

In this section, I discuss the research methodology. As to be identified in the coming sections below, the selection of sources of international air law sets the structure of this research. Therefore, I intend to examine the sources of this study first and foremost to define what I am going to study. This overview is followed by a description of the structure of the study, which explains how I address the research questions.

At the end of this section 1.3 on research methodology, I explore the methods of interpretation to be used for the analysis of legal sources.

1.3.2 Sources of the study

1.3.2.1 Sources of public international law

This study examines the sources of public international law, as recognised by the International Court of Justice (ICJ). The ICJ Serves as the principal judicial organ of the United Nations, where all 193 UN member States have the right to appear.[53] The Statute of the ICJ, henceforth referred to as the 'ICJ Statute' identifies the following sources: of international law in the context of determining a party's entitlement to appear before the Court:[54]

> a. *international conventions, whether general or particular, establishing rules expressly recognized by the contesting States;*
> b. *international custom, as evidence of a general practice accepted as law;*
> c. *the general principles of law recognized by civilized nations;*
> d. *subject to the provisions of Article 59 of the ICJ Statute, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.*

These sources are referred to in Chapter 3 of this study if applicable.

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53 International Court of Justice, 'States entitled to appear before the court' < https://www.icj-cij.org/en/states-entitled-to-appear> accessed 13 October 2024.

54 Statute of the International Court of Justice (signed 26 June 1945, entered into force 18 April 1946) art 38. See also, *Judge Greenwood C, Sources of International Law: An Introduction <https://legal.un.org/avl/pdf/ls/greenwood_outline.pdf>* accessed 13 October 2024.

1.3.2.2 Sources of international air law and criminal law

Amongst these sources, this study takes into account the following specific air law sources:[55]

- *National laws and regulations of selected jurisdictions;*[56]
- *Norms made by international aviation organisations such as ICAO;*
- *Resolutions and conditions drawn by private bodies such as EUROCONTROL or the International Federation of Air Line Pilots' Associations (IFALPA).*[57]

1.3.2.3 Qualitative and quantitative data

This study utilises both qualitative and quantitative data. While these data may not be legal in nature, they provide a broader perspective on State practice and pilot practice. Examples include the level of implementation presented in Chapter 4 and the survey conducted among pilots presented in Chapter 5. The sources of the qualitative and quantitative data used in this research are referenced in a dedicated chapter.

1.3.3 Structure of the study

This study consists of six chapters, including the current introductory Chapter 1.

This present Chapter further delineates the scope of this study by outlining legal sources, interpretation methods, and research questions. It explains key terms, including the legal language used in international civil aviation, and presents the methodology and analysis of legal provisions' binding force. The selected subjects address the legal position of pilots, applicable legal provisions, international air law fundamentals, the concepts of accidents and incidents, safety and security, and international organisations' role in addressing pilots' criminal liability.

Chapter 2 of this study discusses how the paradigms of safety, legal certainty, and transparency and their constituent elements are defined in the context of international civil aviation. These interacting paradigms are designed to articulate and balance the principal interests of international aviation generally and the legal position of pilots in terms of criminal liability specifically.

Chapter 3 contains the analyses of the international legal framework covering the conduct and criminal liability of pilots, namely international air law treaties, and how paradigms defined in Chapter 2 interact therewith. The

55 Mendes de Leon PMJ, *Introduction to Air Law* (11th edn, Wolters Kluwer 2022) 4.
56 *See* Section 1.3.3 and Chapter 4 of this research.
57 *See* Section 1.4.5 of this research

sources of the analyses are international treaties and related air law norms, which are:

- The Chicago Convention on International Civil Aviation (1944) – the Chicago Convention (1944), to which are Annexes are attached, laying down:
- SARPs, relevant to the criminal liability of pilots:[58]
  - ICAO Annex 1 Personal Licensing
  - ICAO Annex 2 Rules of the Air
  - ICAO Annex 6 Operation of Aircraft
  - ICAO Annex 11 Air Traffic Services
  - ICAO Annex 13 Aircraft Accident and Incident Investigation
  - ICAO Annex 19 Safety Management

In addition, the following legal instruments are engaged in the analysis:

- Other norms drawn up by ICAO relevant to the criminal liability of pilots, which include but are not limited to:
  - Procedures for Air Navigation Services (PANS);[59] and
  - The Safety Management Manual (Doc 9859), hereinafter the 'SMM',

In two cases, this research references older ICAO technical instruments rather than the most recent versions. The first case is when these older instruments contain factual information and interpretations that remain relevant to the present day and to the focus of this research, which may not be covered by the latest versions.[60] The second case is when they illustrate the evolution of SARPs.[61] In both instances, these non-current editions serve as valuable resources for understanding the evolution and history of the technical and international perspectives relevant to this study.

Chapter 4 presents selected domestic air laws in combination with criminal laws regulating the criminal liability of pilots. The jurisdictions selected for this purpose are the US, the United Kingdom (UK), and the Republic of Korea (ROK). The criteria for this selection are based on two factors: the Effective Implementation (EI) percentage of SARPs above the global aver-

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58 For the binding force of SARPs contained in these ICAO Annexes, *see* Section 1.5.2 of this research. Chapter 3 discusses the rationale behind this selection, which requires an analysis of Article 12 of the Chicago Convention (1944). The relevant editions of these Annexes are referred to in the coming sections where necessary.

59 Prof. Huang defines PANS as follows: *"PANS comprise, for the most part, operating practices as well as material considered too detailed for SARPs. PANS often amplify the basic principles in the corresponding SARPs to assist in their application." See*, Huang J, *Aviation Safety and ICAO* (Ph.D. Dissertation, Leiden University 2009) 44.

60 An example of this is the explanation of organisational accidents found in the third edition of the ICAO Safety Management Manual, even though a fourth edition has since been published. References to this content are provided in Chapter 2 of this research.

61 For example, what is now Standard 5.12 in ICAO Annex 13 was previously a recommended practice. Chapter 3 of this research analyses this development using earlier editions of ICAO Annex 13.

age, showing the uniform application of air law, geographical distribution, and the representation at the ICAO Council State.[62]

The *first* factor is the EI above the global average. On average, all ICAO Member States have implemented 70.2% of the ICAO SARPs into domestic legislation. Meanwhile, the selected jurisdictions have implemented more than 90% of the SARPs, with high involvement and visibility in international civil aviation.[63] These jurisdictions supposedly demonstrate the most seamless application of SARPs and, hence, are the best subjects to explore the coherence and clarity within the interaction with the domestic general criminal law.

The *second* factor is the geographical distribution. In addition to the higher EI than the global average, this study aims to collect a broad picture of the global regulatory overview with complexities, which is why the selections are made based on location, being the continents of America, Europe, and Asia.[64]

What Chapter 4 does not consider is States with a low level of EI. The inclusion of jurisdictions with lower EI scores could offer valuable insights into the relationship between implementation levels and legal clarity. A lower degree of implementation may correlate with increased legal ambiguity, thereby highlighting potential gaps in the interpretative framework. However, a significant limitation arises in such jurisdictions due to the absence of case law. Without judicial decisions to illustrate the practical application and interpretation of relevant legal provisions, it becomes challenging to assess how clarity is maintained or undermined in practice. This absence of precedent restricts the ability to draw substantive conclusions regarding the legal coherence of such jurisdictions.

Conversely, focusing on high EI jurisdictions allows for an examination of clarity within the environments where standardisation through the implementation of SARPs is optimal. By analysing these jurisdictions, this study can identify issues that arise even under the optimal conditions where the implementation is expected to be most consistent. This study aims to gain

62 ICAO defines the EI as follows: "Effective implementation (EI) is a measure of the State's safety oversight capability. A higher EI indicates a higher maturity of the State's safety oversight system." *See* ICAO, *Report on Universal Safety Oversight Audit Programme Continuous Monitoring Approach (USOAP CMA) Results – 1 January 2013 to 31 December 2015* (2016) 2-4.

63 At the early stage of this research, the selected jurisdictions, which are the US, UK, Switzerland, Sweden and RoK implemented respectively 91,45%, 92,29%, and finally 98,68% of ICAO SARPs into the domestic legal system. For more, please *see* ICAO, 'Safety Audit Results: USOAP Interactive Viewer' <https://www.icao.int/safety/pages/usoap-results.aspx> accessed 13 October 2024. Currently, the result is improved, as to be seen in Chapter 4 of this research.

64 Until the near completion of the research, the selected jurisdictions reflected the African region by researching South Africa. However, despite the high level of implementation level, there has not been a particular criminal law case and hence, excluded from this study.

valuable insights into the relationship between clarity and standardisation through this approach..

States with low EI presumably rely more on domestic criminal law.[65] However, the research questions of this study require an analysis of the interpretation of both international and domestic criminal air law, which is achieved by examining the relationship between implemented international air law and domestic criminal law. Since States with the low EI do not offer this aspect, they are excluded from this study.

Moreover, a low EI does not necessarily imply a lack of legal certainty within a jurisdiction. Legal certainty may still be maintained domestically if prosecutions rely exclusively on national law, supported by well-established legal principles. However, this is not directly relevant to the present research, which specifically examines the legal clarity in the interplay between international air law and domestic criminal law. The exclusive reliance on domestic criminal law presents an additional challenge, as it limits the ability to assess how clarity is maintained within the broader international air law framework, including SARPs. This distinction further reinforces the need to focus on jurisdictions where national and international air law and criminal law provisions interact meaningfully in order to maintain the intended scope of this study.

Chapter 5 provides an evaluation of pilots' perceptions of selected topics on criminal liability. Here, using the survey method, I present a concept of 'collective-subjective clarity' to circumscribe foreseeability as a qualitative element of legal certainty. The findings of the previous Chapters 2 and 3 are selected as part of the survey topics. Three case studies have also been selected for this evaluation.

Chapter 6 offers a summary and conclusions of this study and recommendations designed to create awareness and enhance coherence and clarity on the criminal liability of pilots based on legal parameters.

The next sub-section identifies legal sources required to answer the research questions outlined in section 1.2 above.

1.3.4 Interpretation of sources

1.3.4.1 Applicability of the Vienna Convention on the Law of Treaties (1969)

The interpretation of the international legal framework contained in Chapter 3 of this study in particular, is made in accordance with the interpreta-

65 *See*, Van Dam R, 'Preserving Safety in Aviation: "Just Culture" and the Administration of Justice' (2009) 22 Air and Space Lawyer 1, 5.

tion methods laid in the Vienna Convention of the Law on Treaties of 1969, hereinafter the 'VCLT'.[66] This method is relevant because domestic court judges employ the VCLT's interpretation methods when analysing international treaties.

However, arguably, the VCLT does not apply to the interpretation of the Chicago Convention (1944) due to the timing of its conclusion. Article 4 of the VCLT provides that it does not apply to the interpretation of treaties that were signed before the entry into force of the VCLT.[67] Since the Chicago Convention (1944) was signed in 1944 and entered into force in 1947, it may be a treaty to which the interpretation methods of the VCLT, which entered into force in 1969, are not necessarily applicable.

However, the ICJ has repeatedly confirmed that the interpretation methods mentioned in Article 31 of the VCLT are a reflection of customary international law.[68] The ICJ identifies this in multiple cases,[69] and has explicitly confirmed that Article 4 VCLT does not limit the ICJ in interpreting treaties which do not meet the requirements of Article 4 in accordance with the rules reflected in Article 31 VCLT.[70] Therefore, these interpretation methods are applicable to the interpretation of the Chicago Convention (1944) and subsequent Annexes.

66 United Nations, Vienna Convention on the Law of Treaties, 23 May 1969, United Nations, Treaty Series, vol. 1155, p. 331 (VCLT), < https://legal.un.org/ilc/texts/instruments/english/conventions/1_1_1969.pdf > accessed 13 October 2024. The VCLT was adopted at Vienna, Austria, on 22 May 1969 and later entered into force on 27 January 1980, according to Article 84(1) of the treaty. Currently, there are 45 signatories, and 116 States are parties to the VCLT.

67 VCLT, art 4

68 *Territorial Dispute (Libyan Arab Jamahiriya/Chad), Judgment, I. C. J. Reports 1994, p. 6, 19, 41. See also,* Section 1.4.2 of this research.

69 *Territorial Dispute (Libyan Arab Jamahiriya/Chad), Judgment, I. C. J. Reports 1994, p. 6, para. 41; Oil Platforms (Islamic Republic of Iran v. United States of America), Preliminary Objection, Judgment, I. C. J. Reports 1996, p. 803, para. 23; Kasikili/Sedudu Island (Botswana/Namibia), Judgment, I.C.J. Reports 1999, p. 1045, para 18.*

70 *Kasikili/Sedudu Island (Botswana/Namibia), Judgment, I.C.J. Reports 1999, p. 1045, para 18.*

The VCLT codifies, in many respects, existing customary international law with regard to the law of treaties.[71] It provides general rules of interpretation as well as supplementary means of interpretation of treaty texts.[72] Article 31(1) of the VCLT states that "[a] treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose."[73] The present study also observes this rule.

Sources of this study include subsidiary means for the determination of rules of law, which are referred to in Article 38 of the ICJ Statute.[74] Such sources do not always hold binding force.[75]

Examples of these sources are ICAO SARPs and resolutions, as well as norms drawn up by parties of international professional associations such as the IATA or IFALPA.[76] While recognising the lack of binding force of such instruments, as they are not listed in Article 38 of the ICJ Statute, this study intends to interpret these sources using the interpretation methods mentioned in this Section, considering the practical implications of these sources for the subject of this research.

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71 *Territorial Dispute (Libyan Arab Jamahiriya/Chad)*, Judgment, I.C.J. Rep. 1994 (Feb. 3), p. 6., *21–22; 100 ILR 1, 20–21; Kasikili/Sedudu Island (Botswana/Namibia)*, Judgment, I.C.J. Rep. 1999 (Dec. 13), p. 1045*; Indonesia/Malaysia case (Sovereignty over Pulau Ligitan and Pulau Sipadan) [2002] ICJ Rep 625, 645–646; Genocide Convention (Bosnia v Serbia) [2007] ICJ Rep 43, 109–110; Costa Rica v Nicaragua [2009] ICJ Rep 213, 237; Qatar v Bahrain case (Maritime Delimitation and Territorial Questions) [1995] ICJ Rep 6, 18; 102 ILR 47, 59; Peru v Chile (Maritime Dispute) [2014] ICJ Rep 3, 28; Croatia v Serbia (Application of the Convention on the Prevention and Punishment of the Crime of Genocide) [2015] ICJ Rep para 138; Question of the Delimitation of the Continental Shelf between Nicaragua and Colombia beyond 200 Nautical Miles from the Nicaraguan Coast (Nicaragua v Colombia) [2016] ICJ Rep 100, para 35; ITLOS Advisory Opinion on Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area, 1 February 2011, para 57; Auditing of Accounts between the Netherlands and France (France v Netherlands) (Arbitral award, 12 March 2004) para 59; Fisheries Jurisdiction case (United Kingdom v Iceland) [1973] ICJ Rep 3, 14; GATT Dispute Settlement Panel Report on United States Restrictions on Imports of Tuna (1994) 33 ILM 839, 892*; Linderfalk U, *On the Interpretation of Treaties* (Springer 2007) 2; Villiger ME, *Commentary on the 1969 Vienna Convention on the Law of Treaties* (Martinus Nijhoff Publishers 2008) 24; Akehurst M, 'Custom as a Source of International Law' (1976) 47 BYBIL 1, 47; Merkouris P, 'Introduction: Interpretation is a Science, is an Art, is a Science' in Fitzmaurice M and others (eds), *Treaty Interpretation and the Vienna Convention on the Law of Treaties: 30 Years On* (Martinus Nijhoff Publishers 2010) 5.

72 VCLT, arts. 31 and 32.

73 VCLT, art 31(1).

74 Section 1.3.1.2 of this research.

75 *See* Sections 1.4.1 and 1.5 of this research.

76 Section 1.8 of this research.

1.3.4.2 Interpretation methods

Firstly, objective interpretation focuses on the ordinary meaning of the wording of a treaty and can also be regarded as a textual approach or textual school.[77] In the Second Membership Case of the ICJ in 1950, the decision of the ICJ provides the following: [78]

> "*The first duty of a tribunal which is called upon to interpret and apply the provisions of a treaty, is to endeavour to give effect to them in their natural and ordinary meaning in the context in which they occur. If the relevant words in their natural and ordinary meaning make sense in their context, that is an end of the matter*."

As Sir Francis Jacobs stated, the first question to be raised under objective interpretation is "what did the parties say."[79] In this context, the precise wording of the relevant provisions of the Chicago Convention (1944), SARPs, and other legal instruments must be observed in order to determine their meaning and scope.

Secondly, it is possible that "the words in their natural and ordinary meaning are ambiguous or lead to an unreasonable result."[80] In that case, the ICJ further provides that it must "resort to other methods of interpretation, seek to ascertain what the parties really did mean when they used these words."[81] Therefore, this subjective interpretation method focuses on the intention of States when they sign a treaty and on matters that reflect the "real will" of the States through the negotiations and the course of "the adoption of the final text."[82]

Thirdly, treaties should be interpreted reflecting the object and purposes of the treaty,[83] known as the teleological approach. This teleological approach pursues an interpretation relying on the treaty's object and purpose; the context thereof can be given not only in the preamble and annexes but also in any agreement relating to the treaty between all the parties involved and

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77 Morse O, 'Schools of Approach to the Interpretation of Treaties' (1960) 6 Catholic University Law Review 1, 41.

78 *Competence of Assembly Regarding Admission to the United Nations (Advisory Opinion) [1950] ICJ Rep 4.*

79 Jacobs FG, 'Varieties of Approach to Treaty Interpretation: With Special Reference to the Draft Convention on the Law of Treaties before the Vienna Diplomatic Conference' (1969) 18(2) The International and Comparative Law Quarterly 318, 319.

80 *Competence of the General Assembly for the Admission of a State to the United Nations*, Advisory Opinion, I.C.J. Rep. 1950 (Mar. 3), p. 4.

81 *Competence of the General Assembly for the Admission of a State to the United Nations,* Advisory Opinion, I.C.J. Rep. 1950 (Mar. 3), p. 4.

82 Jacobs FG, 'Varieties of Approach to Treaty Interpretation: With Special Reference to the Draft Convention on the Law of Treaties before the Vienna Diplomatic Conference' (1969) 18(2) The International and Comparative Law Quarterly 318, 319.

83 VCLT, art 31. *See also*, Gardiner R, *Treaty Interpretation* (2nd edn, OUP 2015) Part II.

any instrument that was proposed by one or more parties involved in the conclusion.[84]

Fourthly, Subsequent agreements establish the agreement of the parties and any relevant rules of international law; these shall be taken into account together with the context.[85] An example is the Protocol to Amend the Convention on Offences and Certain Other Acts Committed on Board Aircraft, henceforth referred to as the 'Montreal Protocol (2014)',[86] which amends the Convention on Offences and Certain Acts Committed on Board Aircraft,[87] henceforth referred to as the 'Tokyo Convention (1963)'.[88] If so intended by the parties, a special meaning to a term in question shall also be given by such parties.[89] When such interpretation leaves any ambiguity, obscurity, and unreasonableness, recourse may be taken to the preparatory work of the treaty or the circumstances of the conclusion of the treaty.[90]

1.3.5 Brief concluding remarks on research methodology

Section 1.3 above outlines the research methodology employed in this research, including the structure of the study and the types of sources utilised, as well as as interpretation rules that domestic courts may use in cases concerning, for this study, the criminal liability of pilots.

Designed to enhance normative clarity, the methodology of this study predominantly focuses on interpreting air law as a branch of public international law and domestic criminal law in subsequent Chapters. Additionally, this study incorporates insights from empirical research methods and ICAO's interpretation guidelines to address the multidisciplinary nature of aviation. Integrating these diverse methods aims to clarify the legal framework's interpretation.

1.4 Explanation of principal terms

1.4.1 Provisional overview of the principal terms

As highlighted in Section 1.1, international air law, as a branch of public international law, has a significant impact on the domestic air law frame-

84 VCLT, art 31. *See also*, Gardiner R, *Treaty Interpretation* (2nd edn, OUP 2015) Part II.
85 VCLT, art 31. *See also*, Gardiner R, *Treaty Interpretation* (2nd edn, OUP 2015) Part II.
86 Protocol to Amend the Convention on Offences and Certain Other Acts Committed on Board Aircraft (Montréal Protocol, 2014) [Montreal Protocol (2014)]
87 *International Civil Aviation Organization (ICAO), Convention on Offences and Certain Acts Committed on Board Aircraft, 14 September 1963 (Tokyo Convention) (ICAO Doc 8364).*
88 Section 1.2.2 and Chapter 2 of this research.
89 VCLT, art 31. *See also*, Gardiner R, *Treaty Interpretation* (2nd edn, OUP 2015) Part II.
90 VCLT, art 32

works regulating pilot behaviour with the presence of SARPs.[91] Public international law might not directly shape domestic criminal law to the same extent, but it undeniably influences domestic air law, which interplays with domestic criminal law.

Therefore, the following section aims to clarify terms and concepts essential for understanding the analyses in this research and defining the substantial scope of this study.

1.4.2 Binding force

Throughout this study, the term 'legal force' or 'binding force' frequently appears, [92] especially in the context of analysing the applicability of SARPs within the international legal framework.[93] Legal force denotes the binding and enforceable nature of a legal instrument.[94] Understanding how such instruments can be invoked, implemented, and enforced in international relations and domestic legal systems is crucial to understanding the international air law regime. Therefore, binding force is a foundation of this study when substantively examining SARPs in Section 3.

The binding force of a legal instrument is based on the *consent of States*.[95] This is especially pertinent to multilateral treaties.[96] For instance, treaty provisions possessing legal force create rights and obligations for States if the States that have signed the treaty in question decide to be bound by those provisions.[97] In this case, a signature is the expression of consent to give legal force to the signed treaty.[98] For the Chicago Convention (1944), signatures, ratification, and adherence are the forms of consent.[99]

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91 *See*, Section 1.5.2.

92 This term is interchangeably used with 'legal effect' or 'legal authority'.

93 Section 1.5 of this research.

94 However, the 'legal bindingness' differs from 'legal validity'. According to Prof. Klabbers, the legal binding force may follow the legal validity of a legal instrument, but it cannot be used interchangeably. *See* Klabbers J, 'The Validity and Invalidity of Treaties' in Hollis DB (ed), *The Oxford Guide to Treaties* (2012) 553.

95 *See Lotus Case* (1927), P.C.I.J. Series A, No. 10, 18.

96 International Law Commission, Fourth Report on the Law of Treaties, by Mr. G.G. Fitzmaurice, Special Rapporteur (A/CN.4/120, 17 March 1959): "No treaty would be binding if there were not already a rule of law to the effect that undertakings given in certain circumstances and in a particular form create binding obligations. Such a rule must necessarily lie outside the treaty, since no instrument can derive binding force from itself alone."

97 In principle, a signature is one of the ways to provide consent to create the legal force of a treaty. There are also other means to express consent. *See* VCLT, art 11. The means can be "signature, exchange of instruments constituting a treaty, ratification, acceptance, approval or accession, or by any other means if so agreed." See, International Law Commission, 'Draft Articles on the Law of Treaties with Commentaries' in *Yearbook of the International Law Commission, 1966, vol II* (United Nations 1966), 209 and Bradley CA, 'Treaty Signature' in Hollis DB (ed), *The Oxford Guide to Treaties* (Oxford University Press 2012) 208.

98 The Chicago Convention (1944) came into force on 4 April 1947.

99 *See* Chicago Convention (1944), arts 91-92.

The VCLT regulates 'legal force' in the context of multilateral treaties, which is a primary focus of Chapter 3 in this research.[100] As far as it is relevant for the present study, the notion of binding force pertains to the general obligations raised by consenting States to be bound by a multilateral treaty and also the VCLT as a codification of customary international law. The following paragraphs explain this aspect.

A principal obligation laid down in the VCLT pertains to the principle of *good faith*. Article 26 of the VCLT establishes the fundamental principle that "every treaty in force is binding upon the parties to it, and it must be performed by them in good faith." The ICJ interprets the principle of good faith as the obligation to act reasonably and to act to fulfil the purpose of treaties once consented.[101] This principle is also a general principle of international law, whereas the obligations under the Chicago Convention (1944) are subject to it.[102]

The principle of good faith is supported by the superior legal force of treaty law over domestic law.[103] Article 27 VCLT declares that "provisions of its internal law" cannot be the justification for the failure of compliance with the VCLT by States parties with treaty obligations based on the "contractual obligation binding the treaty parties."[104] Hence, the domestic legal order, including constitutions, cannot justify the failure to comply with the obligations of the Chicago Convention (1944).

Certain provisions of the VCLT, including the principle of good faith[105] and interpretational rules,[106] are regarded as customary law.[107] The ICJ esteems that customary law is the "generalization of the practice of States."[108] Once State practice is generally recognised as a rule of law,[109] the rule of

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100 Section 1.2.1. of this study.

101 *Gabcikovo-Nagymaros Project (Hungary/Slovakia),* Judgment, I.C.J. Rep. 1997 (Sept. 25), p.7.

102 *See* Sections 1.5.2.4. to 1.5.2.6. of this study.

103 Villiger ME, *Commentary on the 1969 Vienna Convention on the Law of Treaties* (Martinus Nijhoff Publishers 2009) 371.

104 Villiger ME, *Commentary on the 1969 Vienna Convention on the Law of Treaties* (Martinus Nijhoff Publishers 2009) 371.

105 *See* VCLT, *Preamble.*

106 *Arbitral Award of 31 July 1989* (Advisory Opinion) [1991] ICJ Rep 69, 70, para 48: "… [a]rticles 31 and 32 of the Vienna Convention on the Law of Treaties…may in many respects be considered as a codification of existing customary international law…"

107 *Arbitral Award of 31 July 1989* (Advisory Opinion) [1991] ICJ Rep 69, 70, para 48: "… [a]rticles 31 and 32 of the Vienna Convention on the Law of Treaties…may in many respects be considered as a codification of existing customary international law…" *See also*, Gardiner R, *Treaty Interpretation* (2nd edn, Oxford University Press 2015) 161.

108 *Fisheries Case (United Kingdom v Norway) [1951] ICJ Rep 116, Judge Read's dissenting opinion; North Sea Continental Shelf Cases (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands) [1969] ICJ Rep 3, 44; S.S. Lotus (France v Turkey) [1927] PCIJ Ser A No 10; Legality of the Threat or Use of Nuclear Weapons (Advisory Opinion) [1996] ICJ Rep 226.*

109 *North Sea Continental Shelf (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands),* Judgment, I.C.J. Rep. 1969 (Feb. 20), p. 3., paras 43, 44, 74, 77.

customary law becomes binding and must be acceptable to the court as a source of public international law.[110] Such provisions are also applied in the analysis conducted in Chapter 3 on the pre-Chicago regime and the Chicago Convention (1944), both of which were concluded before the VCLT.[111] These provisions are relevant to the present study because of their impact on the interpretation of international air law provisions.

Section 1.5 below discusses the applicable air law regimes. In that context, the term 'legal force' is crucial for analysing the extent to which SARPs influence domestic legislation related to the criminal liability of pilots.

1.4.3 Basic concepts of international air law: sovereignty, autonomy, and jurisdiction

The concepts of sovereignty, autonomy, and jurisdiction are essential elements in the interpretation of air law in the quest to address this study's principal research questions. These terms not only form the foundation of legal analyses but also distinguish themselves through their unique roles and implications within the legal framework governing civil aviation.

On the one hand, there is *sovereignty*.[112] Judge Alvarez shared his understanding as follows:[113]

> *"By sovereignty, we understand the whole body of rights and attributes which a State possesses in its territory, to the exclusion of all other States, and also in its relations with other States. Sovereignty confers rights upon States and imposes obligations on them."*

A relatively simple definition of sovereignty would be "supreme authority within a territory,"[114] which is connected to independence in a defined territory.[115] The Chicago Convention (1944) recognises sovereignty over the airspace over a defined territory, called "air sovereignty".[116]

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110 *See* Section 1.3.2 of this research; Greenwood C, 'Sources of International Law: An Introduction (ICJ)' <https://legal.un.org/avl/pdf/ls/greenwood_outline.pdf> accessed 13 October 2024.

111 *See* Section 1.5.

112 *See* Paris Convention (1919), art. I: "The High Contracting Parties recognise that every power has complete and exclusive sovereignty over the air space above its territory." *See also*, Chicago Convention (1944), art 1: "The contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory."

113 *Fisheries Case (United Kingdom v Norway)* (Merits) [1951] ICJ Rep 116, ICGJ 196 (ICJ 1951), 18 December 1951, Individual Opinion of Judge Alvarez, 43.

114 Besson S, 'Sovereignty' in *Max Planck Encyclopedia of International Law* (2011) para 1.

115 Mendes de Leon PMJ, *Cabotage in Air transport Regulation* (Martinus Nijhoff Publishers 1992) 29.

116 This is more extended than the usually discussed sovereignty in international law. *See* Goedhuis D, 'The Air Sovereignty Concept and United States Influence on Its Future Development' (1955) 22 Journal of Air Law and Commerce 209. *See also*, Sections 1.4.1. and 1.5.2. on 'binding force' and the specific reference to the Chicago regime in this research.

On the other hand, *autonomy* can be deemed a specific element of sovereignty. It is the "legislative power of a body other than the State" itself,[117] . Autonomy is particularly relevant in the context of international civil aviation, where certain jurisdictions, such as the overseas territories of the Netherlands, possess a degree of legislative autonomy while maintaining under the sovereignty of the Netherlands.[118] Autonomy, in this sense, entails the ability to regulate internal matters which logically extends to the regulation of criminal liability of pilots operating within such territories.[119] While these autonomous entities do not possess sovereignty and, therefore, cannot directly consent to be bound by international treaties such as the Chicago Convention (1944), they are still subject to its overarching framework and obligations. This is significant for criminal air law because it raises questions about how SARPs are implemented in territories that do not have independent representation at ICAO but retain the authority to establish legal accountability for aviation-related offenses within their jurisdiction. By clarifying the distinction between sovereignty and autonomy in this context, this discussion highlights the complexity of legal frameworks governing pilot liability in non-sovereign territories.

Next to sovereignty and autonomy, a related concept pertains to *jurisdiction*. It encompasses a State authority to prescribe, adjudicate and enforce laws, as yet another aspect of sovereignty. [120] In other words, it is the "power of the State under international law to regulate or otherwise impact upon

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117 Gray JC, *The Nature and Sources of the Law* (Beacon Press 1921) 158. *See* also, Keith AB, *The Sovereignty of the British Dominions* (Macmillan and Company, Limited 1929) 183: "It might be held that the Dominions and the United Kingdom were connected by a union which made them a single entity in international law, and yet that in all matters of internal affairs each possessed absolute autonomy and owed no subordination to another." The concept of autonomy illustrates a nuanced aspect of sovereignty not necessarily tied to territorial boundaries or a defined territory. For the territorial integration and sovereignty, *see* Permanent Court of Arbitration, *Reports of International Arbitral Awards – Island of Palmas Case (Netherlands, USA)* (1928), 838 and Republic of Azerbaijan, *Written Statement of the Republic of Azerbaijan (Request by the General Assembly of the United Nations for an Advisory Opinion – Case Concerning Accordance with International Law of the Unilateral Declaration of Independence by the Provisional Institutions of Self-Government of Kosovo)* (2009) para 19.

118 For example, Aruba obtained its autonomous status to control and manage internal affairs. However, it is not a sovereign State and, hence, is unable to give consent to be bound by the legal order of the Chicago Convention (1944). However, under the sovereign power of the Netherlands and their consent, Aruba is bound.

119 Mendes de Leon PMJ, *Cabotage in Air transport Regulation* (Martinus Nijhoff Publishers 1992) 29 and 68.

120 See, *Lotus Case* (1927), P.C.I.J. Series A, No. 10, Ryngaert C, 'The Concept of Jurisdiction in International Law' in Orakhelashvili A (ed), *Research Handbook on Jurisdiction and Immunities in International Law* (Edward Elgar Publishing 2015) 50, Wallace RM and Martin-Ortega O, *International Law* (7th edn, Sweet & Maxwell 2013) 123, Shaw MN, *International Law* (9th edn, Cambridge University Press 2021) 55. *See also*, Mendes de Leon PMJ, 'The Dynamics of Sovereignty and jurisdiction in International Aviation Law' in Duursma J and others (eds), *State, Sovereignty, and International Governance* (Oxford University Press 2002) 485.

people, property, and circumstances and reflects the basic principles of State sovereignty, equality of State and non-interference in domestic affairs."[121] Criminal liability, air navigation, aircraft, and pilots are amongst subjects that are impacted by jurisdiction.

There are three concepts of jurisdictions, namely, *prescriptive*, adjudicative and *enforcement* jurisdiction.

Firstly, *prescriptive* jurisdiction refers to the capacity of States or entities to legislate autonomously. For instance, the States have the power to enact criminal laws affecting the conduct of pilots. In other words, prescriptive jurisdiction enables States or related public entities to regulate matters coming under their jurisdiction, including the criminal liability of pilots.

Secondly, adjudicative jurisdiction refers to the authority of a State's courts to hear cases and make judicial decisions. In the context of criminal law, this jurisdiction allows courts to prosecute offences committed under the laws of the specific State.

Thirdly, *enforcement* jurisdiction pertains to the capacity to ensure compliance with the laws and regulations established by States or other entities possessing jurisdiction. In the context of criminal liability, enforcement jurisdiction means the legal capacity to ensure compliance of pilots with applicable laws and regulate breaches through prosecution and punishment.

Prof. Cheng interprets these jurisdictions by dissecting them with respect to 'jurisfaction' and 'jurisaction', which may be more relevant in international civil aviation.

According to him, jurisfaction refers to a power of a State to "adopt valid and binding legal norms or decisions and to apply or concretise them with binding effect through its appropriate organs whether judicial or otherwise."[122] This concept represents the "normative elements" of prescriptive and adjudicative jurisdictions.[123] It includes both the creation of legal norms and their application in judicial proceedings. Consequently, jurisfaction reflects the implementation of obligations under the Chicago Convention (1944), SARPs and other ICAO norms if they are valid and binding and adjudication on the basis. Section 1.5 discusses this aspect in more detail.

On the other hand, 'jurisaction' encompasses the power to "perform any governmental functions, be it the act of actually making, applying,

121 Shaw MN, *International Law* (9th edn, Cambridge University Press 2021) 555.
122 Cheng B, *Studies in International Space Law* (Oxford University Press 1997) 73.
123 Cheng B, *Studies in International Space Law* (Oxford University Press 1997) 73.

implementing or enforcing laws."[124] Therefore, as Prof. Cheng describes it, jurisaction represents a "physical or concrete element" in prescriptive and enforcement jurisdictions.[125] In the context of the criminal liability of pilots, jurisaction refers to the actual and physical enforcement of relevant laws established under jurisfaction, meaning the prosecution, punishment, or imposition of penalties in accordance with those legal norms.

Understanding these concepts above is key to this research. Sovereignty gives a state complete control over its airspace, legal system, and the enforcement of laws, autonomy provides specific legislative powers not always linked to a state's territory for those States that do not represent themselves at ICAO, and jurisdiction deals with how laws are applied and enforced. Prof. Cheng's distinction between jurisfaction and jurisaction adds depth to the discussion of international air law. This groundwork prepares a detailed look at pilot criminal liability, aiming to untangle and address the research questions laid down in Section 1.2 above.

1.4.4 Aviation accidents and incidents

The terms 'aviation accident' and 'incident' define the vital scope of this research. When referring to 'aviation accidents' or 'incidents', this study intends to look into the following events as defined by ICAO:

- *"Accident. An occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:*
  - *a person is fatally or seriously injured as a result of being in the aircraft, or direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or direct exposure to jet blast, except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or*
  - *the aircraft sustains damage or structural failure which adversely affects the structural strength, performance or flight characteristics of the aircraft, and would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to a single engine (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windscreens, the aircraft skin (such as small dents or puncture holes), or for minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike (including holes in the radome); or*

124 Cheng B, *Studies in International Space Law* (Oxford University Press 1997) 73.
125 *See* Cheng B, *Studies in International Space Law* (Oxford University Press 1997) 73.

– *the aircraft is missing or is completely inaccessible."*[126]

In addition, ICAO Annex 13 presents the definition of 'incident' and also 'serious incident':

- *"Incident. An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.*[127]
- *Serious incident. An incident involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down."*[128]

These terms set the scope of this research more clearly, as the following paragraphs present.

According to their definitions, accidents, incidents, and serious incidents are all occurrences. However, ICAO makes distinctions to categorise these occurrences for uniform use in statistics.[129] Such occurrences share similarities.

Firstly, all of these occurrences are associated with the operation of an aircraft. Therefore, this study looks into the acts of pilots concerning the operation of the aircraft.

Secondly, all of the occurrences can compromise operational safety, whether they lead to actual damage or injury or pose a potential risk. Accordingly, this study looks into the events where operational safety is compromised, leading to actual or potential damages, injuries, or risks.

Thirdly, the timeframe considered ranges from boarding for the intention of flight to disembarking for all three events. Hence, this study primarily intends to explore cases between boarding and the end of the flight when

126 ICAO, *Annex 13 – Aviation Accident and Incident Investigation* (12th edn, ICAO 2020) 1-1 Definition. The original definition also includes accidents involving unmanned aircraft operations; however, for the purpose of this research, this chapter focuses only on the definition of manned aircraft accidents, as previously stated.

127 ICAO, *Annex 13 – Aviation Accident and Incident Investigation* (12th edn, ICAO 2020) 1-1: *"Note.— The types of incidents which are of main interest to the International Civil Aviation Organization for accident prevention studies are listed in Attachment C."*

128 ICAO, *Annex 13 – Aviation Accident and Incident Investigation* (12th edn, ICAO 2020) 1-1: *"Note 1.— The difference between an accident and a serious incident lies only in the result. And Note 2.— Examples of serious incidents can be found in Attachment C."*

129 ICAO, *Annex 13 – Aviation Accident and Incident Investigation* (12th edn, ICAO 2020) 1-1 Definition.

the primary propulsion system is shut. However, in some cases, this timeframe is extended within this research to encompass the necessary activities of pilots pre-boarding.[130]

These occurrences differ in severity, damage or injury extent, and potential impact on operational safety. While primarily meant to provide statistical insights, these differences influence the criminal liability of pilots, especially in terms of the depth and focus of both technical and judicial investigations and any potential charges that may be brought in judicial investigations.

1.4.5 Just Culture[131]

The concept of Just Culture is a principal junction between safety, transparency in civil aviation, and clarity with respect to criminal liability. Just Culture entered international air law in the 21st century when the organisational factor was introduced in the aviation industry.[132] This concept has no universally accepted definition, but the following approaches have been adopted to circumscribe it.

First of all, ICAO defines Just Culture as:

> "*An atmosphere of trust in which people are encouraged* (*even rewarded*) *for providing essential safety-related information, but in which they are also clear about where the line must be drawn between acceptable and unacceptable behaviour*."[133]

The concept is clarified as follows:

> "*Just culture philosophy is designed to counter the strong natural inclination to blame individuals for errors ….. A key objective of the just culture perspective is to provide fair treatment for people, applying sanctions only where errors are considered to be intentional, reckless or negligent*."[134]

The phrase "the strong natural inclination to blame individuals" and the provision of "fair treatment of people" must be understood to refer to pilots – as "individuals" or as "people" in the context of this study. Just Culture explicitly supports that the imposition of sanctions must be restricted to cases, that is, accidents and incidents caused by intentional, reckless, or negligent conduct according to the definition and clarification of Just Culture of ICAO.

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130 *See*, Chapter 4.

131 Part of the findings in this section is also referred to in Choi J and Truxal SJ, *Accessibility of Investigation Records from the Aircraft Accident at Bijlmermeer – A Comparative Legal Analysis* (2024).

132 *See* Section 2.2.5 of this research.

133 ICAO, *Doc 9870 AN/463 Manual on the Prevention of Runway Incursions* (1st edn, 2007) vii.

134 ICAO, *Doc 9870 AN/463 Manual on the Prevention of Runway Incursions* (1st edn, 2007) 5.2.1.

At the regional level, this concept has become more crystallised. For instance, in Europe, Regulation (EU) 996/2010 on the investigation and prevention of accidents and incidents appears to adopt a similar approach when proclaiming the following:[135]

> *"The civil aviation system should equally promote a non-punitive environment facilitating the spontaneous reporting of occurrences and thereby advancing the principle of 'just culture'."*[136]

Similarly, Eurocontrol has put forward the following definition:

> *"'Just culture' means a culture in which front line operators or others are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but where gross negligence, wilful violations and destructive acts are not tolerated."* [137]

Both definitions within Europe align in promotion of a safety-oriented, non-punitive culture while ensuring accountability for reckless or intentional misconduct.

Based on the fundamental definitions of Just Culture discussed above, three findings are made. *Firstly*, different terms are used in each of the definitions. This reflects variability in languages while it has the same objective to foster aviation safety and accountability. The variability may impact the clarity of the law.

Secondly, this concept primarily focuses on the behaviour of individuals involved in the case of an accident or incident, such as pilots, rather than on access to documentation of information. This emphasises the safety paradigm, as Just Culture is designed to encourage reporting and learning from mistakes rather than hampering criminal investigations. However, the absence of a focus on documentation raises questions regarding the transparency and clarity.

Thirdly, the definitions further indicate that pilots are not, and should not, be immunised from prosecution or criminal sanctions, but that their behav-

135 Regulation (EU) 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC (Text with EEA relevance) [2010] OJ L295/35 [Regulation 996/2010].

136 Regulation 996/2010, Preamble (24). *See also,* Regulation (EU) 376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis and follow-up of occurrences in civil aviation, amending Regulation (EU) 996/2010 and repealing Directive 2003/42/EC and Commission Regulations (EC) 1321/2007 and 1330/2007 (Text with EEA relevance) [2014] OJ L122/18,.art 2.

137 *See also*, EUROCONTROL, *Just Culture Policy* (EUROCONTROL 2012) 8.

iour should be tested against the standards of culpability which are mentioned in these definitions, that is, intentional and reckless behaviour, blame and negligence.[138] These grounds for culpability can only be understood by reference to national law, as interpreted by courts that are seized by a case concerning the conduct of pilots who have been involved in an accident or incident.[139] Chapter 4 illustrates such cases.

The application of the three main paradigms of Safety, Transparency, and Legal Certainty to the criminal liability of pilots in the context of international civil aviation is further analysed in Chapters 2 and 3. By examining how Just Culture functions, this study provides insights into how these paradigms shape the evolving landscape of the criminal liability of pilots.

1.5 Applicable air law regimes

1.5.1 The pre-Chicago Convention (1944) regime

1.5.1.1 Defining the pre-Chicago Convention regime

The first traces of the notion of criminal liability of pilots in relation to accidents and incidents appear as early as the draft Paris Convention of 1910, followed by the Paris Convention (1919).[140] I refer to these two frameworks as the 'pre-Chicago Convention regime'.

The draft Paris Convention of 1910 was not formalised. However, The Paris Convention (1919) was concluded and entered into force as a multilateral treaty.

1.5.1.2 Discontinuation of the pre-Chicago Convention regime

Article 80 of the Chicago Convention (1944) requires States to undertake to denounce the Paris Convention (1919).[141] Therefore, the Paris Convention (1919) has no legal force after the denunciation among the now 193 Con-

138 Culpability may mean many things. It may mean 'legal responsibility for a criminal act', 'blameworthiness, or quality of being culpable. It can also mean the mental status at the time of criminal conduct. It can mean a condition for criminal liability or a threshold, or 'a bundle of aspects of intent or culpa, culpability, the person of the suspect, the seriousness of the offense and the circumstances under which is committed. *See*, Van Luijk EHA, *Het schuldbeginsel in het Nederlandse strafrecht* (PhD thesis, University of Groningen 2015) 15.

139 *See*, Van Dam R, 'Preserving Safety in Aviation: "Just Culture" and the Administration of Justice' (2009) 22 Air and Space Lawyer 1, 5.

140 *Convention Relating to the Regulation of Aerial Navigation* (signed 13 October 1919, entered into force 11 July 1922).[Paris Convention (1919)].

141 Chicago Convention (1944), art 80. *See also*, Milde M, *International Air Law and ICAO* (Essential Air and Space Law, 3rd edn, Eleven International Publishing 2016) 10 and 12.

tracting States of the Chicago Convention (1944).[142] Hence, the pre-Chicago Convention regime does not impact the current discussion of the criminal liability of pilots.

Nevertheless, this study considers the pre-Chicago Convention regime. The pre-Chicago Convention regime illustrates the first legal contribution to the evolution of the safety paradigm.[143] For example, provisions on prosecution in the Chicago Convention (1944) are based on provisions in the pre-Chicago Convention regime.[144] Hence, despite the denunciation, the pre-Chicago Convention regime retains relevance.

1.5.2 Provisions of and norms under the Chicago Convention (1944)

1.5.2.1 Binding force of the Chicago Convention (1944)

Under Article 44 of the Chicago Convention (1944), ICAO is mandated to develop principles and techniques for the safety of air navigations in international civil aviation.[145] ICAO's power to do so is further vested in Part I of the Chicago Convention (1944).[146] Among other chapters, Chapter II in Part I of the Chicago Convention (1944) regulates international obligations imposed on State parties with respect to criminal liability of pilots. Also, Chapter VI of the Chicago Convention (1944) is dedicated to the global safety regulations, also referred to as SARPs, mandating ICAO to develop these norms. These norms are technical specifications regarding safety and security and, in part, the protection of the environment.

Firstly, all types of occurrences mentioned in Section 1.4.4. above are related to the operational control of an aircraft,[147] that is part of air navigation.

142 Status per November 2024.

143 Kuhn AK, 'International Aerial Navigation and the Peace Conference' (1920) 14(3) The American Journal of International Law 369, 370.

144 Articles on the competence of pilots, recognition of certificates, rules of the air, and safety standards in the predecessors do remain in the Chicago Convention (1944). *See also*, Section 3.2 of this research.

145 Chicago Convention (1944), art 44. As referred to by Prof Havel and Dr Sanchez, ICAO also focuses on air transport which involves commercial aspects of international civil aviation. *See* Havel BF and Sanchez GS, *The Principles and Practice of International Aviation Law* (Cambridge University Press 2014) 69.

146 According to Dr Leclerc, this part focuses on technical and operational rules including global safety regulations. *See* Leclerc T, *Les mesures correctives des émissions aériennes de gaz à effet de serre. Contribution à l'étude des interactions entre les ordres juridiques en droit international public* (PhD thesis, Leiden University 2017) 65-67. Partial translation of the quote in Dr Leclerc is to be found in Stewart ME, *Freedom of Overflight: A Study of Coastal State Jurisdiction in International Airspace* (PhD thesis, Leiden University 2021) 39.

147 ICAO Annex 6 defines "operational control" as the "exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight" in ICAO, *Annex 6 Operation of Aircraft*, vol Part I – International Commercial Air Transport – Aeroplanes (12th edn, 2022).

States are committed to regulating air navigation under Chapter II of the Chicago Convention (1944), which partially suggests prosecuting pilots. Chapter 3 of this study discusses this aspect.

Secondly, Chapter VI of the Chicago Convention (1944) imposes international obligations on ICAO Member States and provides legal force to SARPs. SARPs specify the pilots' actions during air navigation in more detail and may provide grounds for prosecution under Chapter II of the Chicago Convention (1944). Therefore, the legal force of the Chicago Convention (1944) is essential for enhancing the safety of international civil aviation while it forms the legal basis of the safety paradigm and for enforcing SARPs, which the following subsection explains.

1.5.2.2 The Chicago Convention (1944) as an instrument of international law

According to Prof. Cheng, the Chicago Convention (1944) is a multilateral treaty functioning as an umbrella for international civil aviation that regulates various civil aviation activities taking place. Prof. Cheng defines this function as follows:

> *"Under the umbrella of the multilateral Chicago Convention, post-war international civil aviation has been regulated on an interstate basis by means of a complex system of bilateral treaties, exchange of notes and memoranda of understanding."*[148]

International obligations imposed by the Chicago Convention (1944), including the safety of international civil aviation, are binding upon its current 193 Contracting States.[149]

Article 82 of the Chicago Convention (1944) confirms its binding force. This provision stipulates the obligation of Contracting States not to commit to any "obligations and understandings" inconsistent with the obligations

148 Cheng B, 'Henri Wassenbergh on Air and Space Law: An Appreciation' (2015) 40(1) Air and Space Law 9, 10. *See also* Cheng B, 'Part 1 Conspectus of International Air Law – 1. Air Law' in Cheng C-J (ed), *Studies in International Air Law: Collected Work of Cheng Bin* (Brill 2018) 36. Prof. Cheng adds that "international air law includes rules of general or customary international law," next to treaties. *See also* Milde M, *International Air Law and ICAO* (3rd edn, Eleven International Publishing 2016) 19.

149 *See* Section 1.4.1 of this research.

under the Chicago Convention (1944).[150] The "obligations and understandings" include any prior air services agreements between Contracting States, referring to safety conditions for other Contracting States to fulfil.[151] Drafters of this article also intended to abolish any private or public agreements States may make against the Chicago Convention (1944) once it entered into force.[152]

Therefore, terms under the Chicago Convention (1944) possess legal force with respect to agreements that may hamper safety.[153] Prof. Milde holds that Article 82 highlights the "mandatory nature" of the Chicago Convention (1944) because there is no provision that permits reservation to provisions in the Chicago Convention (1944) against Article 82.[154] Hence, the importance of Article 82 to the legal force of the Chicago Convention (1944) with regard to this research is the following: if there were prior and subsequent commitments made against obligations regarding the promotion of safety and air navigations in the context of criminal liability of pilots in accidents under the Chicago Convention (1944), Contracting States shall evade all of these inconsistent obligations.

1.5.2.3 Commitments made under the Chicago Convention (1944)

Obligations under the Chicago Convention (1944) are formulated in different manners. To be precise, there are four types of obligations within the Chicago Convention (1944): declaratory of customary law,[155] "shall", "undertaking"and "may" obligations. In this respect, the Chicago Convention (1944) is not different from other treaties concluded under the rule of international law. With that, the question arises whether the different use of terms in the Chicago Convention (1944) generates a hierarchy of obliga-

150 Chicago Convention (1944), art. 82: "The contracting States accept this Convention as abrogating all obligations and understandings between them which are inconsistent with its terms, and undertake not to enter into any such obligations and understandings. A contracting State which, before becoming a member of the Organization has undertaken any obligations toward a non-contracting State or a national of a contracting State or of a non-contracting State inconsistent with the terms of this Convention, shall take immediate steps to procure its release from the obligations. If an airline of any contracting State has entered into any such inconsistent obligations, the State of which it is a national shall use its best efforts to secure their termination forth with and shall in any event cause them to be terminated as soon as such action can lawfully be taken after the coming into force of this Convention."

151 *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 400 and 1393.

152 *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 400 and 1393.

153 *See* Section 2.2.2 of this research.

154 Milde M, *International Air Law and ICAO* (Essential Air and Space Law, 3rd edn, Eleven International Publishing 2016) 20.

155 *See* Cheng B, *The Law of International Air Transport* (Stevens & Sons Limited / Oceana Publications INC 1962) 120 to be in "purely declaratory" nature.

tions, resulting in a differentiated treaty obligations regime. This question is especially relevant in the context of Article 12 of the Chicago Convention (1944) that is the principal provision Chapter 3 explores in relation to the prosecution of pilots where these obligations appear.[156] Article 12 obliges each Contracting State "to ensure the prosecution of all persons violating the regulations applicable." Section 3.3.2 of Chapter 3 contains the analysis of these terms.Based on the above interpretation methods of the ICJ on treaty provisions,[157] I attempt to analyse the impact of different terminology on the hierarchy of obligations which are categorised as , "declaratory of customary law",[158] "shall" and "undertake", and "may" provisions.

Examples of declaratory provisions manifesting the existence of customary law are Articles 1 and 3*bis*. Article 1 provides that States *recognise* the sovereignty of other States, and part of Article 3*bis* lays down that States *recognise* the prohibition on the use of force against international civil aviation. These provisions are rather close to statements confirming international customary law.[159] These provisions are identified as declaratory because of their historical background. They constitute already governing principles of international civil aviation aligning with general principles of international law rather than identifying specific new obligations incumbent on the Contracting States.

Concerning "shall" and "undertake" provisions, I argue that "shall" and "undertake" provisions should be understood in the context of the Chicago Convention (1944) and general treaty law. On the one hand, "shall" provisions typically appear in the contexts where the obligation is directed not only at States but also at individuals.[160] These provisions impose both positive and negative obligations, meaning they may require an actor to take specific actions or refrain from certain conduct. On the other hand, "undertake" provisions explicitly refers to Contracting States, indicating a formal

156 In short, Article 12 obliges each Contracting State "to ensure the prosecution of all persons violating the regulations applicable." Section 3.3.2 of Chapter 3 contains the analysis of the provision.

157 *See* Sections 1.3.3 of this research.

158 In the coming paragraphs, I refer to this type of provisions as "declaratory" obligations.

159 *See* Section 1.4.1 of this research. *See also*, Cheng B, 'Recent Developments in Air Law' 9(1) Current Legal Problems 208, 209.

160 For example, Paragraph c of Article 3*bis* of the Chicago Convention (1944) provides that "every civil aircraft shall comply with…," which imposes a direct obligation on civil aircraft. In contrast, Article 5 provides that "each contracting States agrees that all aircraft of the other contracting states … shall have the right…," which indicates a commitment by States to recognise certain rights for foreign aircraft.

commitment by State to fulfil a specific obligation..[161] Since both types of provisions relate to aviation safety, it would be paradoxical to assume that "undertake" provisions are inherently less binding than "shall" provisions. Instead, they should be understood as imposing obligations of equal weight within the treaty framework.

If a provision includes the term "may", the State in question has freedom of action, as it allows a State for some degree of discretion to account for the feasibility of applying and implementing the measure contained in the legal provision in question.[162]

Chapter 3 revisits these obligations under the Chicago Convention (1944), which may be formulated in terms of "declaratory of customari law", "shall", "undertake", and "may." Therefore, I reserve the conclusion on impact of the legal force of relevant provisions until that analysis is conducted.

1.5.2.4 Establishment of Standards and Recommended Practices (SARPs) in ICAO Annexes

Article 37 of the Chicago Convention (1944) obliges its Contracting States to jointly adopt technical measures in the form of principally SARPs, which are designed to enhance uniformity of standards and to improve air navigation. These objectives serve aviation safety.[163]

The reason the legal force of SARPs is receiving attention in the present subsection is not only because of its relevance for the present research but also because the legal force of SARPs remains a topical issue in the law governing international civil aviation.[164] The below paragraphs reflect on this issue to the extent necessary to discuss the criminal liability of pilots.

Annexes are not multilateral treaties but technical documents that are attached to the Chicago Convention (1944). As also argued by Prof. Chinkin, the power of the ICAO Council to adopt SARPs and to designate them as

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161 *See Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro) (Judgment) [2007] ICJ Rep 111, para 162.*: "[t]he ordinary meaning of the word 'undertake' is to give a formal promise, to bind or engage oneself, to give a pledge or promise, to agree, to accept an obligation. It is a word regularly used in treaties setting out the obligations of the Contracting Parties… It is not merely hortatory or purposive."

162 *See Black's Law Dictionary* (8th edn, Thomson Reuters 2004) 3106.

163 *See* Chapter 2 on the definition of safety and notes of the research regarding Prof Huang's interpretation on safety.

164 For the earlier discussion on the legal force of SARPs, *please see*, Warner E, 'The Chicago Air Conference: Accomplishments and Unfinished Business' (1945) 23(3) Foreign Affairs 406 and Ozgur N, *Global Governance of Civil Aviation Safety* (Routledge 2023).

Annexes was a rather new form of law-making.[165] Also, the formulation of SARPs by ICAO has been referred to as the "quasi-legislative function" of the ICAO Council, as briefly described in Section 1.1.4 above.[166]

Prof. Haanappel divides the legal dimension of the safety paradigm into two parts, legal and technical, and leaves a question on the legal force of the technical rules, that are SARPs, stating that:

> "*The ICAO Air Navigation Commission was working hard at a revision of annexes 2 and 11, and while it was difficult to make such standards absolutely binding on states, it was a useful technical effort which might produce more concrete results than judicial efforts which might be employed in the special ICAO Assembly to begin in two weeks…* [S]*tates would have more difficulty hammering out new legal rules than in hammering out new technical rules, especially if the technical rules were not binding and deviations were authorized by filing notification with ICAO.*"[167]

Prof. Haanappel's statement highlights the tension between legal and technical standards in air law. While the technical aspects of SARPs are rather easier to develop and update than the formal legal rules, their binding nature remains conditional.

In addition, Prof. Milde remarks:

> "*The term 'Annex' to the Convention could lead to a conclusion that it is an indivisible part of the Convention and that the Standards in the Annexes have the same legal status as the Convention itself; however, Article 54 (1) of the Convention clarifies that the Standards are designated as annexes to the Convention only 'for convenience', they are not an integral part of the Convention and do not have the same status as a binding source of international law*."

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165 *See* Chinkin C, 'Normative Development in the International Legal System' in Shelton D (ed) *Commitment and Compliance: The Role of Non-binding Norms in the International Legal System* (Oxford University Press 2003) 21 and 42 quoted in Dempsey PS, 'Blacklisting: Banning the Unfit from the Heavens (Section I)' (2007) 32 Annals of Air and Space Law 29 note 29 at 35. In this, Prof. Dempsey argues that the nature of SARPS brings a discussion of whether SARPs are hard or soft law. Yet, such is referred to as the "quasi-legislative function" of the ICAO Council. *See also*, Stewart ME, *Freedom of Overflight: A Study of Coastal State Jurisdiction in International Airspace* (PhD thesis, Leiden University 2021) 39; Cheng B, *The Law of International Air Transport* (Stevens & Sons Limited / Oceana Publications INC 1962) 63-76; Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 196.

166 Under Article 54 of the Chicago Convention, the ICAO Council has the power to draw up SARPs, which are the result of the collaboration undertaken under Article 37, into Annexes "for convenience." See also, Stewart ME, *Freedom of Overflight: A Study of Coastal State Jurisdiction in International Airspace* (PhD thesis, Leiden University 2021) 39; Cheng B, *The Law of International Air Transport* (Stevens & Sons Limited / Oceana Publications INC 1962) 63-76; Huang J, 'Aviation Safety and ICAO' (Leiden University 2009) 196.

167 *See* De Saussure H and others, *Legitimate Responses to Aerial Intrusion in Time of Peace* (Cambridge University Press 1984) 37

Yet, his writing does not state that SARPs are not binding at all, which validates the assumption that the legal status of SARPs is still a relevant topic.[168]

Prof. Chinkin introduces the concept of 'soft law' in international organisations, arguing that traditional sources of international law cited in Article 38(1) of the ICJ Statute do not meet the evolving needs of norms created by international organisations or specialised agencies.[169] She suggests that, while SARPs may lack binding force in the conventional sense, they embody a form of soft law that encourages States to confirm their behaviours to shared standards. Building on this, Prof. Dempsey highlights the practical challenges in enforcing SARPs under the Chicago Convention (1944), noting that compliance often depends more on reputation or economic incentives than legal obligations.[170] Together, these perspectives deepen the discussion on the legal force of SARPs.

With this foundation above, Chapter 3 examines the international legal framework with special reference to SARPs that influence answers to the research questions of this study. These findings serve as a basis for successive chapters of this study.[171] The next sub-section goes more deeply into the binding force of SARPs. Indeed, SARPs encompass principal norms affecting the criminal liability of pilots.

1.5.2.5 Binding force of Standards

Despite the absence of attempts to define the term 'Standard' until 1956, the Chicago Convention (1944) requires undertakings of its Contracting States for collaboration in "securing the highest practicable degree of uniformity" in SARPs and other rules and procedures under Article 37 of the Chicago Convention (1944), including those relating to the criminal liability of pilots.[172]

In this mandatory collaboration, the Chicago Convention (1944) does not define the term 'Standard'.[173] Instead, the definition contained in the resolution of the first ICAO Assembly reflects the view of the ICAO on 'Standard'

168 *See* Milde M, 'Enforcement of Aviation Safety Standards – Problem of Safety Oversight' (1996) 45 Zeitschrift fur Luft- und Weltraumrecht 3, 5

169 *See* Chinkin C, 'Normative Development in the International Legal System' in Shelton D (ed), *Commitment and Compliance: The Role of Non-binding Norms in the International Legal System* (Oxford University Press 2003) 21 and 42.

170 *See* Dempsey PS, 'Blacklisting: Banning the Unfit from the Heavens (Section I)' (2007) 32 Annals of Air and Space Law 29.

171 *See* Section 1.2 regarding research questions and Section 3.4 on the substantive analysis of SARPs of this research.

172 According to Article 37 of the Chicago Convention (1944), rules of the air and licensing of operating personnel are where uniformity is required.

173 *See* Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 44 and Milde M, *International Air Law and ICAO* (Essential Air and Space Law, 3rd edn, Eleven International Publishing 2016) 173.

in the context of Article 37 of the Chicago Convention (1944). This view reads as follows:

> "*Standard means any specification for physical characteristics, configuration, matériel, performance, personnel, or procedure, the uniform application of which is recognized as necessary for the safety or regularity of international air navigation and to which Contracting States will conform in accordance with the Convention; in the event of impossibility of compliance, notification to the Council is compulsory under Article 38.*"[174]

Hence, in the event of non-compliance with a Standard or Recommended Practice, a State must notify the ICAO Council of its inability to do so.

Based on the part of the sentence in the last mentioned quote, starting with the words "in the event that …," to be read in conjunction with Article 38 of the Chicago Convention (1944),[175] scholars argue that SARPs indeed have a limited binding force.[176] Prof. Milde insists that nobody can force States to apply Standards when they find it impossible or simply "not practicable" to comply with them.[177] Similarly, Prof. Huang points out that the word "impracticable" provides flexibility to States,[178] pursuant to which States can put forward any "practical reasons."[179] These commentators conclude that Article 38 provides freedom to Member States to deviate from the inter-

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174 ICAO, Assembly Resolution A1-31: Definition of International Standards and Recommended Practices (Doc 7670 Resolutions and Recommendations of the Assembly 1st to 9th Sessions (1947-1955)) (1956). This definition is different from Standards for air transport. In air transport, 'Standard' means any specification, the uniform observance of which has been recognized as practicable and as necessary to facilitate and improve some aspect of international air navigation, which has been adopted by the Council according to Article 54(1) of the Convention, and in respect of which non-compliance must be notified by States to the Council per Article 38. *See* ICAO, *Annex 9 Facilitation* (16th edn, 2022)

175 Article 38 of the Chicago Convention (1944) provides that contracting States of the Chicago Convention (1944) are compulsory to notify in case of non-compliance with Standards if the States find compliance "impracticable."

176 Prof. Milde argues that Article 37 imposes an obligation to "collaborate," but not to "comply." See, Milde M, *International Air Law and ICAO* (Essential Air and Space Law, 3rd edn, Eleven International Publishing 2016)173. Similarly, Bowen, who served as assistant secretary to the committee on provisiona air routes during the Chicago conference states that the intention of the Conference is making adherence "a moral obligation rather than a legal one." *See,* Bowen HA, 'Chicago International Civil Aviation Conference' (1945) 13(3) George Washington Law Review 308, 314.

177 Milde M, *International Air Law and ICAO* (Essential Air and Space Law, 3rd edn, Eleven International Publishing 2016) 174.

178 Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 62.

179 *See* Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 60-61, which quotes Buergenthal T, *Law-Making in the International Civil Aviation Organization* (Syracuse University Press 1969) note 46 at 78. Prof. Huang argued that States can interpret international law according to their own interests, and hence, impracticability should be understood as that States can deviate from SARPs "as freely as it used to be." *See also*, Stewart ME, *Freedom of Overflight: A Study of Coastal State Jurisdiction in International Airspace* (PhD thesis, Leiden University 2021) 40.

national obligation to implement Standards in their national legislation, thus avoiding compliance with SARPs. As said, deviation from the legal force of SARPs is permitted as long as States notify the ICAO Council of such deviation.

In my view, States can decide not to comply with Standards as Standards are not treaty provisions. A State may choose not to comply with such technical standards when that State finds it "impracticable" to comply with them. In such cases, the State in question must notify ICAO of non-compliance, which reports that the non-compliance to all other States.[180]However, non-compliance is not an absolute right that can be taken for granted to deviate from Standards for any practical reason as States must file their non-compliance based on the 'impracticability' representing the partial binding force of Standards based on Article 38 of the Chicago Convention (1944). As Prof. Cheng explains, Standards are binding only if such is the will of the States.[181] However, in the end, States have to express their will not to be bound according to the process required by the Chicago Convention (1944).

In addition, I believe that simple impracticability is not a good reason to depart from Standards. Article 37 of the Chicago Convention (1944) proclaims that Standards are established with the aim of securing the highest practicable degree of uniformity. Uniformity serves safety as aviation is a cross-border activity. Uniform rules help to achieve that objective – safety – worldwide.

Prof. Huang argues that "the primary focus of these provisions is the achievement of uniformity of international standards, and not the freedom of action of the contracting States to file differences."[182] According to him, Article 38 of the Chicago Convention (1944) imposes an obligation for States to find a justification for 'non-implementation' that leads to impracticabili-

180 *See* Chicago Convention (1944), art 38 [*Departures from international standards and procedures*]: *"Any State which finds it impracticable to comply in all respects with any such international standard or procedure, or to bring its own regulations or practices into full accord with any international standard or procedure after amendment of the latter, or which deems it necessary to adopt regulations or practices differing in any particular respect from those established by an international standard, shall give immediate notification to the International Civil Aviation Organization of the differences between its own practice and that established by the international standard. In the case of amendments to international standards, any State which does not make the appropriate amendments to its own regulations or practices shall give notice to the Council within sixty days of the adoption of the amendment to the international standard, or indicate the action which it proposes to take. In any such case, the Council shall make immediate notification to all other states of the difference which exists between one or more features of an international standard and the corresponding national practice of that State."*

181 Cheng B, *The Law of International Air Transport* (Stevens & Sons Limited / Oceana Publications INC 1962) 64. Prof. Cheng added that this is a very important difference between the Annexes of the Paris Convention (1919) and the Chicago Convention (1944).

182 Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 60.

ty.[183] However, the justification must be related to the promotion of safety. As such, according to the drafters of the Chicago Convention (1944), deviations are acceptable only in particular local situations where they might be necessary. However, such deviations do not substantially conflict with existing Standards and States are mandated to announce such deviations a priori.[184] However, these statements made by the drafters of the Chicago Convention (1944) are not reflected in the formulation of Article 38 of that convention when allowing for deviation. It seems to me that, for the sake of uniformity underpinning aviation safety, deviation from SARPs, in particular Standards, should only be allowed in exceptional circumstances,[185] which must be demonstrated by the State, which is able to argue that it should be able to deviate from a particular Standard.

In conclusion, Standards, are not binding *per se*. Standards attached to the Chicago Convention (1944), including those that are related to the criminal liability of pilots, are binding on Contracting States as long as they are implemented in their domestic regulations via applicable constitutional procedures, which can be interpreted as the willingness of States to be bound by the Standards and also the procedural step to be fulfilled. Hence, States must attach such technical standards to their national legislation to keep their domestic legislation aligned with the codes of ICAO. Deviations from ICAO Standards are permitted in exceptional circumstances, including local conditions, provided they do not compromise safety.

1.5.2.6 Binding force of Recommended Practices

Recommended Practices are not as recognisable as Standards in the Chicago Convention (1944).[186] The term appears only twice, that is, in Articles 37 and 54 of the Chicago Convention (1944). These provisions concern the adoption and amendments of Recommended Practices, which is also a part of the mandatory and quasi-legislative function of the ICAO Council.[187] In the absence of such explicit references to the term "Recommended Practice", especially in Article 38 of the Chicago Convention (1944), allowing for

183 *See* ICAO, Assembly Resolution A36-13: Consolidated Statement of ICAO Policies and Associated Practices Related Specifically to Air Navigation (2007) II-3.

184 *See Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 705.

185 Such may include climatological conditions or landing and takeoff conditions related to the location of airports.

186 Yet the concern about the legal force was visible. *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948), 708: "… [I]n certain branches of regulatory action some subjects should be fully standardized, while upon others that internationally agreed documents should present only recommendations implying no obligation, but expressive of a hope that the several nations will follow the recommendation as closely as may be practicable under their particular circumstances."

187 These provisions deal with Standards as well. *See* Section 1.5.2.6 of this research above.

deviation from *"departures from international standards and procedures,"* the binding force of Recommended Practices is not as clear as one might wish.

However, the definition of Recommended Practices, which reads as follows, may provide guidance in this respect:

> *"The 'Recommended Practices' means any specification for physical characteristics, configuration, matériel, performance, personnel or procedure, the uniform application of which is recognized as desirable in the interests of safety, regularity or efficiency of international air navigation, and to which Contracting States will endeavor to conform in accordance with the Convention."*[188]

In this definition, the uniform application of Recommended Practices is only recognised as "desirable," and it requires States to "endeavor to conform." This is to be contrasted with Standards, which are recognised as "required" and require States to "conform."[189]

Commentators argue on this point. Dr Stewart claims that this language clearly presents the different degrees of contribution between Standards and Recommended Practices to international air navigation.[190] Prof. Huang also argues that the Recommended Practices are not binding by this ordinary meaning.[191] According to these commentators, the definitions of both Standadrs and Recommended Practices must be looked at in greater detail.

The definition of the Recommended Practice provides that States attempt, undertake, or aspire to achieve conformity to Recommended Practices, but it does not mean that conformity as a result is expected. That is why I agree with the scholars who argue that the definition of Recommended Practices features a non-binding force.

However, Prof. Huang also suggests that the legal value of Recommended Practices may be as equally important as Standards:

> *"It should be noted, however, that subsequent ICAO Assembly resolutions have tended to blur the distinctions between standards, recommended practices, and PANS. Over the years, emphasis has been placed on eliminating those differences 'that are important for the safety and regularity of international air navigation or are inconsistent with the*

188 ICAO, Assembly Resolution A1-31: Definition of International Standards and Recommended Practices (Doc 7670 Resolutions and Recommendations of the Assembly 1st to 9th Sessions 1947-1955)(1956)

189 ICAO, Assembly Resolution A1-31: Definition of International Standards and Recommended Practices (Doc 7670 Resolutions and Recommendations of the Assembly 1st to 9th Sessions 1947-1955)(1956)

190 Stewart ME, *Freedom of Overflight: A Study of Coastal State Jurisdiction in International Airspace* (PhD thesis, Leiden University 2021) 40.

191 Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 62.

> *objectives of the international standards,' regardless of whether there are differences pertaining to SARPs or PANS."*[192]

Prof. Cheng's view may supplement Prof. Huang's point when putting forward that departures from Recommended Practices should be notified to the ICAO Council, next to Standards.[193] Indeed, the preparatory work provides that the drafting committee wished for voluntary compliance of States if practicable for these States to implement the Recommended Practices in question.[194] Yet, compliance via the implementation of a Recommended Practice is only voluntary but not obligatory. This point requires further studies into the State practice on these differences.

In conclusion, States neither have to comply with Recommended Practices nor have to notify about the departure from Recommended Practices. However, it is still "recognized (as) desirable" to comply with Recommended Practices.[195] Recommended Practices can also become Standards, depending on their growing importance.[196] According to drafters of the Chicago Convention (1944), there is always a chance for Recommended Practices to become Standards if these are sufficiently supported and accepted by the Contracting States:

> *"[i]t is believed that in the future development of technical documents, considerable freedom should be expressed in the introduction of such recommendations, some of which may thereafter become international standards if they gain a sufficient degree of acceptance during the probationary period of mere recommendation."*[197]

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192 Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 63. PANS, an abbreviation of the Procedures for Air Navigation Services, are defined in Section 1.5.2.7. below.

193 Cheng B, *The Law of International Air Transport* (Stevens & Sons Limited / Oceana Publications INC 1962) 70.

194 *See Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 707 concerning Aeronautical Maps and Charts: "…[W]hile general recommended practices, conformity with which would be probable but not definitely pledged." There are more points that the drafting committee certainly expected less on the Recommended Practices than on Standards. *See also Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 734, for instance, which separately expresses the difference of obligations expected by Standards and Recommended Practices.

195 ICAO, Assembly Resolution A1-31: Definition of International Standards and Recommended Practices (Doc 7670 Resolutions and Recommendations of the Assembly 1st to 9th Sessions 1947-1955)(1956)

196 ICAO, Assembly Resolution A1-31: Definition of International Standards and Recommended Practices (Doc 7670 Resolutions and Recommendations of the Assembly 1st to 9th Sessions 1947-1955)(1956)

197 *See Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 708

The Standards that are most relevant for this study are drawn up in ICAO Annex 2 on *Rules of the Air* and Standard 5.12 of ICAO Annex 13 on *disclosure of accident investigation records*. As to ICAO Annex 2, this Annex contains only Standards. However, it also used to contain Recommended Practices, which all now have the status of Standards. As to Standard 5.12 of ICAO Annex 13, this Standard was a Recommended Practice until 1981.[198]

Recommended Practices are also addressed to States in connection with the abilities of a pilot to navigate an aircraft.[199]

1.5.2.7 Other air law instruments

ICAO also provides instruments other than SARPs in the form of Procedures,[200] Manuals, or Circulars.[201] Article 38 of the Chicago Convention (1944) refers to the term "Procedures",[202] and so do SARPs. [203] Some of these instruments also prescribe and indicate behaviours of pilots, and are useful in the interpretation of the legal framework. Hence, the binding force of these instruments ought to be briefly analysed.

Procedures and other technical measures are designed to enhance the safety of aviation through uniformity of such instruments and measures under Article 38 of the Chicago Convention (1944). These instruments provide guidelines for supporting ICAO Member States for the effective implementation of SARPs, which themselves avoid over-prescription of technical

198 *See* Chapter 3 of this research explaining these aspects.

199 *See*, for instance, Recommended Practice 2.3.5.1 of Annex 1: *Experience* 2.3.5.1.1 *Recommendation*.— The applicant should have completed not less than 40 hours of flight time as a pilot of powered-lifts. The Licensing Authority should determine whether experience as a pilot under instruction in a flight simulation training device is acceptable as part of the total flight time of 40 hours.

200 Procedures include Procedures for Air Navigation Services (PANS) and Regional Supplementary Procedures (SUPPS). These documents contain technical specifications with regard to air navigation services applicable uniformly worldwide. Circulars contain "specialized information of interest to Contracting States, including studies on technical subjects." See, ICAO, *Human Factors Digest No. 1 – Fundamental Human Factors Concepts (Circular 216-AN/131)* (1989).

201 Chapter 3 of this research contains an analysis of these instruments and treaty provisions based on these instruments as well.

202 Prof. Huang takes these additional instruments together with SARPs as the "technical safety code" of these instruments. *See* Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 44.

203 For example, ICAO Annex 2 refers to the Airworthiness Manual (Doc9760) as a material listing technical specifications for the navigation lights for aircraft under Section 3.2.3 for Lights to be displayed by aircraft. In the case of ICAO Annex 19, in its Recommendation 5.3.2 on the principle of protection, the Safety Management Manual (Doc 9859) is referred to as guidance material. *See* ICAO, *Airworthiness Manual (Doc 9760)* (4th edn, 2020) and ICAO, *Safety Management Manual (2018)* (Doc 9859, 4th edn, 2018)

details on purpose.[204] At the same time, the PANS provide that they "do not have the same status as SARPs," but it is "recommended to Contracting States for world wide application."[205]

At the same time, Standard 5.2.2.1 in ICAO Annex 15 imposes an obligation to publicise "significant differences between the national regulations and practices of the State and the related ICAO SARPs and Procedures."[206] Standard 5.2.2.1 is similarly aligned with the view of the ICAO Assembly, which resolves for the Council to ensure the incorporation of PANS into SARPs in ICAO Annexes and to urge ICAO Member States to notify the Council of differences in case the differences jeopardise "safety and regularity of international air navigation."[207]

In conclusion, PANS are not considered binding, but States are encouraged to notify ICAO of differences between PANS and their domestic legislation. From this perspective, obligations with respect to notification of differences between national rules and practices and PANs are similar to the obligation of Contracting States to notify differences between national rules and practices and Recommended Practices under Article 38 of the Chicago Convention (1944).

To summarise the above points, instruments other than SARPs are not legally binding, but they complement SARPs as guidance materials. In the case of PANS, States are encouraged to file differences,[208] but there is no encouragement to file differences between the domestic legislation and Manuals, and between the domestic legislation and Circulars. Therefore, the guidance these instruments provide is useful for interpreting pilots' behaviours, but they are not legally binding. Despite the limited binding force, the instruments support practical interpretation, which the analysis in this research aims to present.

Additionally, domestic judges may refer to these norms when determining criminal liability. While binding force is not required for such use, its absence introduces complexity both in terms of objective clarity regarding

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204 *See* ICAO, *Safety Management Manual (2018)* (Doc 9859, 4th edn, 2018) Foreword.

205 *See*, ICAO, *Procedures for Air Navigation Services – Aircraft Operations (Doc 8168)*, vol I-Flight Procedures (6th edn, 2018) (ix).

206 ICAO, *Annex 15 Aeronautical Information Services* (16th edn, ICAO 2018) Standard 5.2.2.1. The publication should be included in the Aeronautical Information Publication (AIP) package. The AIP is "[a] publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation." *See* ICAO, *Annex 15 Aeronautical Information Services* (16th edn, 2018) 1-2.

207 ICAO, *Assembly Resolution A4-7: Relation of Procedures for Air Navigation Services to Annexes* (1950).

208 *See* for example, ICAO, *Procedures for Air Navigation Services – Air Traffic Management (Doc 4444)* (16th edn, 2016).

the applicable norms as to what the pilot's proper cause of action should have been and the pilots' ability to foresee and adhere to that norm.

For these reasons, this study does not ignore the practical value of technical instruments.

1.6 Applicable criminal law principles

Legal certainty is a fundamental sub-principle of the principle of legality, which has been a cornerstone of criminal law since the 1700s.[209] The principle is represented by the legal maxim, "*nullum crimen, nulla poena sine praevia lege poenali.*"[210] It asserts that no one can be convicted for a crime without a pre-existing penal law. This principle prohibits the retroactive application of criminal law, analogical interpretation of criminal law, customary law as a basis of criminal charges, and vagueness in law that could be detrimental to the accused.[211] Within this framework, legal certainty demands clear and precise laws, ensuring individuals to foresee the legal consequence of their actions.[212]

Vagueness and overly complex offences result in legal uncertainty. This potentially leads to the arbitrary application of criminal law. For individuals, particularly pilots in this research, understanding the potential criminal law responses to their actions would be crucial. Clarity functions to provide the protection necessary under the substantive principle of legality, safe-

209 For instance, *see French Declaration of Human and Civic Rights of 26 August 1789*, Articles 7 and 8. Not only by Schünemann, but also other scholars refer to this description. *See also*, French R, 'The Principle of Legality and Legislative Intention' 40 Statute Law Review 40.

210 Von Feuerbach PJA , *Bavarian Criminal Code* (1813). *See also* Martin EA and Blackwell O, 'Nullum Crimen Sine Lege' in *A Dictionary of Law* (5th edn, Oxford University Press 2003). The principle of legality, according to Prof. Schünemann, derives from social contract theory, which holds that individual freedom is recognised insofar as it supports general coexistence. It is not the role of a judge but of the legislature, representing society, to determine the necessity of laws as conditions for peaceful coexistence. Prof. Schünemann references this legal maxim introduced in the Bavarian Criminal Code of 1813. For further discussion, see Schünemann B, *Nulla poena sine lege? : Rechtstheoretische und verfassungsrechtliche Implikationen der Rechtsgewinnung im Strafrecht* (Walter de Gruyter 1978) ch 1.

211 Schünemann B, *Nulla poena sine lege? : Rechtstheoretische und verfassungsrechtliche Implikationen der Rechtsgewinnung im Strafrecht* (Walter de Gruyter 1978) 3. There are also scholars who suggest that the principle of legality entails more than these four aspects. For more, *see* Gallant KS, 'Legality in Criminal Law, Its Purposes, and Its Competitors', *The Principle of Legality in International and Comparative Criminal Law* (Cambridge University Press 2008) 11 analysing Donnedieu de Vabres HFA, 'Le procès de Nuremberg devant les principes modernes du droit pénal international (1947) 70 Recueil des Cours de l'Academie de Droit International 477, 501, passim.

212 The *lex certa* principle has been studied by multiple scholars, and it is not particularly the subject of this research to explore the principle more in-depth. For more, *see* Nan JS, *Het Lex Certa-beginsel* (PhD thesis, Tilburg University 2011).

guarding against arbitrary legal actions and ensuring predictability of legal consequences.

Due to their unique purposes and implications for individual freedom, criminal proceedings are distinct from disciplinary or civil proceedings. As stated by von Liszt, "criminal law is the legally limited punitive power of the State," in "preconditions and contents," and "in the interest of individual freedom."[213] Clearly, criminal liability is the most severe form of liability because it directly affects an individual's liberty. Yet, for the same reason, it is also restricted by the abovementioned principles.

This study does not aim to align the regulatory framework against a specific variant of the principle of legality. Instead, it seeks, against the backdrop of the concept of legal clarity in a general sense, to shed light on the complex interplay between international aviation standards and domestic criminal law. Through this exploration, inherent tensions within this regulatory domain are revealed, highlighting the intricate balance that must be achieved to ensure legal clarity and certainty within the aviation industry.

1.7 Safety and security

1.7.1 Safety

1.7.1.1 Overview

Safety is a dynamic concept in international civil aviation.[214] This value changes over time, depending on the context, the level of technological advancement, and people's perceptions. The concept of safety broadened, especially after the conclusion of the Chicago Convention (1944). Prof. Milde articulates safety early in international civil aviation as "an absence of danger to human life, to property, and to the environment."[215] However, as Castro argues, safety cannot possibly mean "total freedom from injury or risk, as there is no such thing."[216] This perspective acknowledges the inherent risks in aviation, challenging the notion that safety means a complete absence of danger.

The Chicago Convention (1944) introduces various instrumental mechanisms to enhance aviation safety, which subsequent sections of this study

213 Von Liszt F, 'The Rationale for the *Nullum Crimen* Principle' (2007) 5 Journal of International Criminal Justice 1009, 1009-1010.
214 Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 4.
215 Milde M, *International Air Law and ICAO* (3rd edn, Eleven International Publishing 2016) 223.
216 Castro R, 'A Holistic Approach to Aviation Safety' in *Flight Safety Digest* (July 1988).

explore below. These mechanisms reflect the evolved understanding of safety, emphasising a holistic approach, as Figure 1 below depicts:

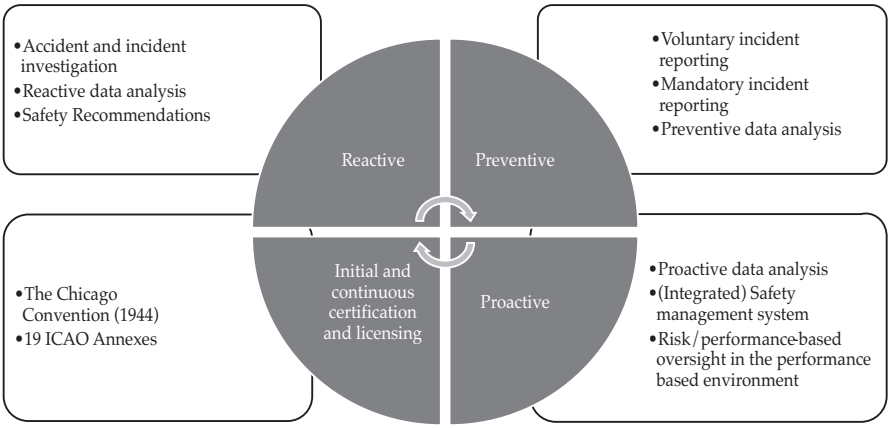

Figure 1 Safety Management System[217]

These mechanisms can be effectively categorised into the following headings: reactive, preventive, and proactive management, each employed subsequent to the initial certification and licensing processes of products, organisations and personnel, including pilots. The Figure above illustrates concise examples of each. Notably, the actions of pilots play a crucial role across all these safety management mechanisms.

At each point in aviation history, the prevailing safety enhancement mechanisms and roles of pilots changed and will change. Therefore, the approach towards paradigms and the topic of criminal liability may also change, as to be discussed in Chapter 3discuss. To understand the complexity arising therefrom, in the following subsections, I briefly analyse the changing definitions of safety in international civil aviation.

1.7.1.2 Definition of safety in the pre-Chicago regime (1944)

The early journey of finding the definition of safety commences in the Paris Convention (1919).[218] According to Prof. Mendes de Leon, "protection of the population," thus on the ground, is the first reason for the prior authorisation of a balloon.[219] Prof. Milde also provides that a "prohibition aimed at protecting the safety of persons and property on the ground" is the

217 Source: author.
218 *Convention Portant Réglementation de la Navigation Aérienne* (Convention Relating to the Regulation of Aerial Navigation), Paris, 13 October 1919.
219 Mendes de Leon PMJ, *Introduction to Air Law* (11th edn, Wolters Kluwer 2022) 4.

"very first real trace of aviation law in history."[220] Prof. Wassenbergh opines that, later, under the Paris Convention (1919), (national) security was also a concern for international civil aviation, and safety then was "to protect one's people against damage and one's territory against the possibility of attack from the air by aircraft of enemy States,"[221] thus again to protect the third parties on the ground. Until then, the focus remained on the initial and continuous certification and licensing of products, organisations and personnel.

1.7.1.3 Aviation safety as accident prevention until the end of the 1990's

In his 1998 publication, Prof. Wassenbergh suggests that safety simply means "no (avoidable) accidents," borrowing Prof. Andem's words that safety entails "care," incorporating being "cautious" and "concerned and solicitous."[222] This interpretation suggests that a careful approach can reduce unsafe situations.[223] Prof. Wassenbergh further refines this by stating that a realistic definition of safety aims for "as few accidents as possible,"[224] as absolute safety is unachievable.

As Figure 1 shows, the prevailing strategies for ensuring safety are centred around initial approval flowing into a reactive approach that learns directly from previous occurrences by identifying and mitigating factors, like hazards, leading to those events through direct interventions. Interestingly, as the number of accidents decreased throughout time, accident prevention became less effective as there was not enough to learn.

1.7.1.4 Aviation safety as risk management in the early 2000's

Throughout time, policymakers and legislators have broadened their focus on aviation safety, pointing out that it encompasses more than just accident avoidance. It became evident that merely focusing on accident avoidance was a too narrow approach to cover hazards. This awareness led to ques-

220 Milde M, *International Air Law and ICAO* (3rd edn, Eleven International Publishing 2016) 6. Prof. Milde cited Sand PH, Lyon JT and Pratt GN, 'A Historical Survey of International Air Law Since 1944'(1961) 7 McGill Law Journal 125, in support of his statement, but this author did not find the relevant statement of which his idea on the early definition of 'safety' is based. This particular view is also shared with aviation practitioners, especially the accident investigators to whom the author has spoken in her capacity as an aviation safety consultant.

221 Diederiks-Verschoor IHP and Wassenbergh HA, 'Dr. J.F. Lycklama à Nijeholt (1846–1947)' 19(1) Air and Space Law 8, 12.

222 Wassenbergh HA, 'Safety in Air Transportation and Market Entry' (1998) 23 Air and Space Law 74, Footnote 1.

223 Wassenbergh HA, 'Safety in Air Transportation and Market Entry' (1998) 23 Air and Space Law 74, Footnote 2.

224 Wassenbergh HA, 'Safety in Air Transportation and Market Entry' (1998) 23 Air and Space Law 74, 74.

tions about the scope of aviation safety. As safety can be compromised by various factors that may require solutions beyond technical advancement and measures alone, the concept of aviation safety started extending beyond accident prevention,.[225] Prof. Huang describes this as follows:

> *"[A]viation safety goes beyond accident prevention from a technical point of view and extends to more profound political, strategic and legal dimensions. It includes preventive, remedial and punitive measures. Accordingly, safety is not limited to accident prevention, but should be considered in a broader term as risk management."*[226]

The broader focus on safety as *risk management* was articulated by two definitions, which ICAO offers to highlight risk management aspects:

1) *"A condition in which risk of harm or damage is limited to an acceptable level."*[227]
2) *"The state of freedom from unacceptable risk of injury to persons or damage to aircraft and property."*[228]

Both are ICAO definitions, but one is more detailed than the other. Then, what is the true definition of safety as risk management?

An exploration into the origins of these definitions reveals their contextual differences. The first, from ICAO's Safety Oversight Manual (2000),[229] offers a more general perspective without specifying what or who is at risk, essentially stating that any condition falling outside of safety parameters is considered unsafe. Conversely, the second definition, stemming from the Air Navigation Commission's discussions, provides clearer guidance on what constitutes an "unacceptable risk," explicitly mentioning the potential harm to individuals or property.[230] Despite their differences, both definitions share the crucial function of delineating between *acceptable* and *unacceptable* risks.

Safety evolved during this period from a narrow focus on accident prevention to a comprehensive approach that includes assessing and managing a wide spectrum of risks. Compared to accident prevention, risk management encompasses potential risks, although they do not always lead to accidents.

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225 *See* Section 2.2 of this research.

226 Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 4. *See also*, Lofaro RJ and Smith KM, 'Rising Risk? Rising Safety? The Millenium and Air Travel' (1997-1998) 28 Transportation Law Journal 205, 216.

227 ICAO, *Safety Oversight Audit Manual (Doc 9735-AN/960)* (1st edn, 2000) 1-3.

228 ICAO Air Navigation Commission, Working Paper AN-WP/7699 – Determination of a Definition of Aviation Safety (2001). *See also* Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 9.

229 ICAO, *Safety Oversight Audit Manual (Doc 9735-AN/960)* (1st edn, 2000).

230 This view is more aligned with the definition of safety from the ISO/IEC Guide 51, which explains that safety is "freedom from unacceptable risk."

Therefore, data collected from incidents and reporting from pilots played a more crucial role during this period. This is the main argument of the criminalisation opponents.[231] The fear of potential criminal liability would lead pilots not to report any events, although this is the basis of Just Culture, which is discussed in Chapter 2.

1.7.1.5 Acceptable level of safety since the early 2010's

A further attempt was made to share the definition of safety in the ICAO's guidance material, with a specific focus on the Acceptable Level of Safety Performance (ALoSP).[232] As an outcome of this effort, safety was defined as:

> *"[t]he state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management."*[233]

This definition is more elaborated than aviation safety as risk management in the section above. It specifies that the possibility, which should mean the risk of harming persons or property, should be mitigated to and continue to be at or below an acceptable level.

ICAO also puts forward that mitigation and maintenance of risk "to be maintained at or below, an acceptable level" is a continuing process and could be done using hazard identification and safety risk management.[234] As such, what activities are to be considered as being possibly harmful becomes changeable, while the question of the level of acceptance also remains an open question. Finally, the journey to find the definition of safety has reached the point of implementing the definition of safety widely through all of the ICAO documents. This specific definition contained in ICAO Annex 19 says that safety is:

> *"[t]he state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level."*[235]

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231 *See* Sections 1.1.3 and 2.2 of this research.

232 While it may sound like the level can be described in numeric values, the ALoSP, according to ICAO, is a concept to define a way to indicate the desired performance in safety performance targets and performance indicators that organizations and individuals may understand. It does not necessarily mean quantified numbers or goals, but can also mean qualitative. It is one of the State obligations under the Chicago Convention (1944) to establish and publish the acceptable level, target, and indicator to measure the performance of individuals, organisations, and States. See, ICAO, *Safety Management Manual (2018)* (4th edn, 2018) Definition.

233 ICAO, *Safety Management Manual (2013)* (3rd edn, 2013) 1-1.

234 ICAO, *Annex 19 Safety Management* (2nd edn, 2016) 34: 'Hazard identification is a prerequisite to the safety risk management process.'

235 ICAO, *Annex 19 Safety Management* (2nd edn, 2016) 1-2.

Compared to the earlier definition contained in the SMM of 2013, the Annex 19 definition suggests the scope of the 'risk' to be associated with aviation activities "related to the operation of aircraft," or ones "in direct support of the operation of the aircraft." Examples of these actions can be strategic management of the flight, which includes the maintenance of the aircraft, and direct support would be the operation of the aircraft itself, which is the job of the pilot. Therefore, pilot conduct is one risk to be managed for reduction or be controlled through more preventive and proactive safety management. This is the approach of the present time.

1.7.2 Security

When the terms 'security' or 'aviation security' appear, this study understands them under the definition provided in ICAO Annex 17.[236] This Annex defines 'security' as "[s]afeguarding civil aviation" against "acts or attempted acts such as to jeopardize the safety of civil aviation."[237] In this context, Prof. Huang correctly argues that safety includes security, adding that "aviation security is but one important aspect of aviation safety."[238]

In short, *safety* is about malfunctions, errors, or other conditions that cause harm or hazards that are potentially inherent in the operation of aircraft, which may still be blameworthy to the extent of giving rise to criminal liability. In comparison, threats in the context of *security* are man-made and rather intentional, aiming to harm safety, like an act of unlawful interference.[239] While security threats are mainly perpetrated by an external actor.

The distinction between safety and security intersects and diverges within the realms of criminal and air law because it cannot be excluded that pilots act with such intent. If pilots act with intent to to harm safety, it constitutes a security breach. Conversely, if pilots' actions aimed at protecting safety cause accidents or incidents, such conduct may constitute a safety risk. In both scenarios, criminal liability may arise due to the resulting harm or endangerment. While pilot security breaches necessarily involve (malicious or direct) intent, criminal liability for safety breaches is not limited to reckless or negligent acts. Broader conceptions of intent, recognised in various legal systems, can also establish criminal liability in safety cases.

The distinction between security and safety breaches might seem clear in theory, but in practice, intent is not always a definitive divider. Security breaches require intent, meaning some safety breaches that overlap with security concerns will also be intentional. However, under broader legal

236 ICAO, *Annex 17 – Security* (11th edn, 2020).
237 ICAO, *Annex 17 Security* (11th edn, 2020) 1-2.
238 Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 5.
239 ICAO, *Annex 17 Security* (11th edn, 2020) 1-2.

interpretations of intent, safety breaches can also be intentional, even when they do not involve security risks. Thus far, the definitions of safety and security have not adequately clarified which acts and intentions can lead to criminal liability.

1.8 The role of international organisations promoting aviation safety

1.8.1 The International Civil Aviation Organization (ICAO)

ICAO was established under Article 43 of the Chicago Convention (1944) pursuant to the wish to develop international civil aviation "in a safe and orderly manner."[240] As a specialised agency of the UN, ICAO, since the conclusion of the Chicago Convention (1944) until now, has been functioning as the global forum dealing with international civil aviation.

With the adoption of the Chicago Convention (1944) in 1944, the protection of safety became one of the primary concerns of the civil aviation industry.[241] Next to the Preamble,[242] which emphasises the importance of safety, Article 44 of the Chicago Convention (1944) explicitly states that:

> *"[t]he aims and objectives of the Organization are to develop the principles and techniques of international air navigation and to foster the planning and development of international air transport so as to insure the safe and orderly growth of international civil aviation throughout the world."* [243]

The promotion of the safety of international air navigation is also mentioned as a goal of ICAO.[244]

As elaborated in Section 1.5.2. above, ICAO ensures a uniform approach towards aviation safety by adopting SARPs.[245] ICAO further encourages its Member States, which are Contracting States of the Chicago Convention

240 Chicago Convention (1944), Preamble.

241 Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 1. Other aims of ICAO are described in the Preamble of the Chicago Convention. *See also*, MacKenzie D, *A History of the International Civil Aviation Organization* (University of Toronto Press 2010) 51.

242 Chicago Convention (1944), Preamble.

243 Chicago Convention (1944), art 44. *See also*, Havel BF and Mulligan JQ, 'International Aviation's Living Constitution: A Commentary on the Chicago Convention's Past, Present, and Future' (2015-2016) 15(7) Issues in Aviation Law and Policy 7, 9.

244 Chicago Convention 1944, art.44. See also, Havel BF and Mulligan JQ, 'International Aviation's Living Constitution: A Commentary on the Chicago Convention's Past, Present, and Future' (2015-2016) 15(7) Issues in Aviation Law and Policy 7, 9.

245 *See* Section 1.5.2 of this research.

(1944), to implement SARPs into the domestic legal system.[246] This encouragement is reflected in Article 37 of the Chicago Convention (1944), which obligates the ICAO Member States to adopt SARPs concerning aircraft, personnel, airways, and other services.[247] However, in SARPs, the particular obligation to criminalise or prosecute does not exist. Nevertheless, SARPs contain specifications applicable to the behaviours of pilots to be addressed in Chapter 3.

ICAO also assists its Member States in conducting proper oversight over the safety of civil aviation. ICAO audited the implementation status of SARPs through the ICAO's Universal Safety Oversight Audit Programme (USOAP) in 1998,[248] which has evolved to the USOAP Continuous Monitoring Approach, hereinafter the 'ICAO USOAP CMA' in 2013, relying more on the State's oversight capacity than the periodic audit of the ICAO.[249]

Notwithstanding the encouragement and efforts undertaken by ICAO, States, and regional aviation safety organisations, the implementation and the compliance status of SARPs per State still differ significantly. The implementation status is represented by the EI score marked by ICAO. The EI score is provided in 8 categories in each State. [250] Currently, as of 13 October 2024, the average EI score of the 189 States listed is 70.5 out of 100,[251] whereas some States' EI scores are much lower than the global average.[252] This means that the full global implementation of SARPs is not accomplished at the time of this study, and hence, the substance of domestic air

246 Abeyratne R, *Aviation and International Cooperation: Human and Public Policy Issues* (Springer 2015) 263.

247 Chicago Convention 1944, art 37. Section 1.5.2 above contains an analysis of the legal effect of SARPs.

248 ICAO, Assembly Resolution A32-11: Establishment of an ICAO universal safety oversight audit programme (1998). *See also*, Milde M, 'Aviation Safety Oversight: Audits and the Law' 26 Annals of Air and Space Law 165; Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 70.

249 ICAO, Assembly Resolution A37-7: The Universal Safety Oversight Audit Programme (USOAP) continuous monitoring approach (2010). *See also*, Chapter 2 of this research on the safety paradigm.

250 These categories are primary aviation legislation and specific operating regulations, civil aviation organisation, personnel licensing and training, aircraft operations, airworthiness of aircraft, aircraft investigation, air navigation services, and aerodromes.

251 Globally, ICAO Member States have implemented 70%39% of ICAO SARPs as of October 2024. The detailed average of each category for the implementation is 77.8% for legislation, 71.43% for organisation, 75.02% for licensing, 71.77% for operations, 83.69% for airworthiness, 54% for accident investigation, 66.1% for air navigation services, and 63.3% for aerodromes, as per 13 October 2024. *See* ICAO, 'Safety Audit Results: USOAP interactive viewer' <https://www.icao.int/safety/pages/usoap-results.aspx> accessed 13 October 2024.

252 For instance, one State implemented about 12.5% of the SARPS in relation to organisations. Since the global average for the implementation of SARPS in organisations is 71.43%, this State's implementation level is significantly low.

law certainly differs. This again highlights the role of ICAO for the uniform application of SARPs all over the world.

1.8.2 EUROCONTROL

ICAO's efforts continue to be successful, but its endeavours are supported by organisations with similar functions, such as Eurocontrol.[253] As a pan-European civil and military aviation organisation supporting the vision to create a 'Single European Sky', Eurocontrol focuses on the management of air navigation services in European skies.

One of its achievements concerns supporting safety and security, for example, by raising awareness of Just Culture, which is to be scrutinised in Section 2.3.5.[254] Documents created by Eurocontrol form one of the sources of the analysis of the international legal framework in Chapter 3 of this study.

1.8.3 The International Federation of Air Line Pilots' Associations

IFALPA is an international non-profit organisation representing airline pilots all over the world. Domestic associations of airline pilots are members of IFALPA, supporting aviation safety and the "piloting profession".[255] Therefore, it is a group that supports the interests of the position of 'pilot' at commercial airlines.

In its supporting activities, IFALPA is regularly represented at ICAO Assemblies as an observer and presents its opinions and analyses on trends and the legal framework. Its members also publish scholarly articles on aviation safety, including their concerns about the criminal liability of pilots. As IFALPA is neither a State nor an intergovernmental organisation, its opinions and analyses do not explicitly impact the creation of the legal framework. However, its impact is not entirely void, as its representation involves the very professional and technical views of pilots. Even without binding force, their opinions clarify the views and interpretations of pilots from practical perspectives on criminal liability. These resources are also the basis of the analyses conducted in Chapters 2, 3, and 4.

1.9 Concluding remarks

The above chapter formulated the main research question and explained how these questions will be addressed in the context of this study.

253 ICAO, *Safety Report 2015* (ICAO 2015) 13.
254 *See* Section 1.4.4 and Chapter 2 of this research
255 *See* IFALPA, 'About Us' <https://www.ifalpa.org/about-us/> accessed 13 October 2024.

The question of circumscribing the criminal liability of pilots is a multifaceted and complex undertaking because it involves a variety of technical, operational and legal factors, and is governed by safety, transparency, and legal certainty paradigms. The principal sources for answering the research questions are international air law instruments and domestic legislation regulating the criminal liability of pilots, wherein these paradigms are also embedded.

The following chapters look into these facets and paradigms. The final chapter attempts to combine the approaches that are adopted in the preceding chapters and draw conclusions and recommendations that I hope are useful for the promotion of aviation safety generally, the practice of aviation, and the stimulation of further research in this interesting subject.

2 Paradigms governing the criminal liability of pilots[1]

2.1 Introduction

At the core of this research on the criminal liability of pilots are three governing paradigms: Safety, Transparency, and Legal Certainty.[2] Each paradigm carries critical implications for pilots, with safety and transparency being particularly relevant within air law, and legal certainty being foundational to criminal law. As noted in Section 1.1.1 of this research, this chapter does not aim to provide an exhaustive analysis of any single interpretation of the principle of legality in substantive criminal law. As such, it is also not an objective of this study to test (inter)national air law, or applications thereof in national jurisdictions in terms of compliance with a particular variant of this principle. Instead, it seeks to illustrate that legal certainty is a fundamental principle of criminal law recognised in international human rights law and requires that a certain standard be met in that respect. At the same time, it is recognised that the principle permits a degree of flexibility within specialised regulatory fields such as air law. A frame of reference is necessary, however, to understand how legal certainty requirements can operate. In this regard, this study references the legal framework of the Council of Europe, focusing on Article 7 of the European Convention for the Protection of Human Rights and Fundamental Freedoms, hereinafter the 'ECHR',[3] which governs the principle of legality.

The purpose of this chapter is to explore these paradigms individually and, more importantly, to illuminate their complex interactions and potential conflicts within the context of air and criminal law.To achieve that goal, this Chapter is organised into three sections, each examining one of the three paradigms – safety, transparency, and legal certainty – within the context of criminal liability of pilots.

Section 2.2 explores the safety paradigm and its evolution within the international air law framework. It highlights the dynamic nature of interna-

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1 Part of the findings in this Chapter is also referred to in Choi J and Truxal SJ, *Accessibility of Investigation Records from the Aircraft Accident at Bijlmermeer – A Comparative Legal Analysis* (2024).

2 *See* Section 1.1.3 of this research.

3 *European Convention for the Protection of Human Rights and Fundamental Freedoms* (ECHR) (adopted 4 November 1950, entered into force 3 September 1953) ETS 5, art 7.

tional civil aviation, especially regarding safety. This section analyses the criminal liability of pilots within this evolving framework.

Section 2.3 examines the transparency paradigm and its link to safety, particularly through Just Culture, which connects the safety and transparency paradigms. Although transparency typically operates outside the air law framework, it supports aviation safety. This section (2.3) defines the flexible role of transparency, especially in the application of Just Culture to enhance safety.

Section 2.4 addresses legal certainty in the special regulatory domain of criminal air law, as mentioned above, referring in that regard to the basic framework of Article 7 of the ECHR. It Case law of the European Court of Human Rights (ECtHR) is particularly used to offer insights as to how legal certainty is unpacked in specialised domains like civil aviation.[4] This section introduces aspects of criminal air law that may impact legal certainty in relation to pilots' criminal liability.

These Sections form the basis for Chapters 3 and 4, which are dedicated to the interpretation of international and domestic legal frameworks through these paradigms.

2.2 Safety

2.2.1 Identification of the safety paradigm

Prof. Wassenbergh has stated the following:[5]

> *"Civilization is the stage of cultural and technological development, in which a group of people or States are willing to integrate their individual values and interests into collective values and interests of the society of which they form part: they are able to identify collective values and interests of their society with their individual values and interests."*

4 In this research, the 'special criminal law' refers to the special law that regulates new types of offences that prevailing criminal codes do not regulate, or where offences do not yet belong to the 'regular' criminal law. This definition is taken from the writing: Kim T, 'Improving the legislative process of the Special Criminal Act – Focusing on the theory of protection law -' (2012) 2021 March, Government Legislation 1, 19; Kristen F and others, 'Inleiding' in Kristen F and others (eds), *Bijzonder Strafrecht – Strafrechtelijke Handhaving van Sociaal-Economisch en Fiscaal Recht in Nederland* (2nd edn, Boom 2019) 18; Cnossen JP, *Wisselwerking tussen commuun en bijzonder materieel strafrecht – Een analyse en waardering in het licht van de beginselen van codificatie, schuld en legaliteit* (PhD thesis, Leiden University 2024) 1-6

5 Diederiks-Verschoor IHPh and Wassenbergh HA, 'Dr. J.F. Lycklama à Nijeholt (1846–1947)' (1994) 19(1) Air and Space Law 8, 10.

It seems to me that the international civil aviation community has also been 'civilized' pursuant to its principal objective of protecting aviation safety. Individuals,[6] organisations,[7] and States integrate their objectives and interests under the governance of the ICAO. The key feature of the safety paradigm in relation to the other paradigms is that the safety paradigm is constructed via a complex, multi-levelled, international consortium of public and private actors, that is, stakeholders, in the aviation community. In relation to aviation, the safety paradigm feeds the other paradigms.

The safety paradigm has dynamically evolved throughout the history of international civil aviation, that is, from 1919, but principally from 1944 until now. As presented in Section 1.7, safety in aviation does not mean 'no accidents' anymore.[8] It results from a continuous management of civil aviation activities, by identifying hazards and risks involving individuals, organisations, and States.[9] As a result, the safety paradigm now encompasses complex and diverse rules and procedures, also indicating increasing duties of the various actors.[10]

The following sections examine the elements of the safety paradigm in a more detailed manner.

2.2.2 The legal dimension of the safety paradigm

The Chicago Convention (1944), which is regarded as "one of the most effective multilateral agreements in the modern era of international law,"[11] represents the primary foundation of the legal dimension of the safety paradigm.[12] With its "universality,"[13] the Chicago Convention (1944), referring to the objective of ensuring "the safe and orderly growth of international civil aviation throughout the world",[14] regulates especially the safety of

6 Section 2.2.4 of this research.
7 Section 2.2.5 of this research.
8 Section 1.7.1.3 of this research.
9 *See* Sections 1.7.1.4 and 1.7.1.5 of this research.
10 Section 2.2.6 of this research.
11 Havel BF and Sanchez GS, *The Principles and Practice of International Aviation Law* (Cambridge University Press 2014) 34.
12 The Chicago Convention (1944) is the current legal foundation of international civil aviation. There have been predecessors which were not as widely accepted as the Chicago Convention (1944) and they had different legal implications than the Chicago Convention (1944) and its SARPs as mentioned in Section 1.5.1 and Chapter 3 of this research.
13 Havel BF and Sanchez GS, *The Principles and Practice of International Aviation Law* (Cambridge University Press 2014) 34. *See also* Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 10. Prof. Milde also provides that the Chicago Convention (1944) belongs to the "most generally accepted multilateral law-making conventions." *See* Milde M, *International Air Law and ICAO* (Essential Air and Space Law, 3rd edn, Eleven International Publishing 2016) 19.
14 Chicago Convention (1944), art 44(a). SARPs have a unique feature in relation to their legal force. For the analysis, *see* sections 1.5.2.5 and 1.5.2.6 of this research.

international civil aviation in a uniform manner, closely involving ICAO, as a global, UN related organisation.[15]

Under the Chicago Convention (1944), SARPs also form a set of globally standardised technical regulations of the safety paradigm.[16] The first set of SARPs was developed by divisions of the Air Navigation Commission of the ICAO,[17] and adopted by the ICAO Council in April 1948.[18] "For convenience," SARPs have been contained as Annexes to the Chicago Convention (1944) ever since,[19] and are updated to take stock of new technologies and other factors.[20]

The legal dimension of the safety paradigm evolves with the emergence of new factors; technical evolution, human, organisation, and system approach. The following three subsections intend to explore their impact and implications for other paradigms and, ultimately, the criminal liability of pilots.

2.2.3 The evolution of technologies

Evidently, technical evolution plays a key role in aviation, thus marking the safety paradigm since the birth of international civil aviation. Indeed, technical safety was one of the main features driving the need for regulation in aviation. In the early age of international civil aviation, the industry motto was "build it and fly it; if it doesn't work, fix it and try flying again."[21]

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15 Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 1. ICAO's role in this respect is already elucidated in Section 1.8.1 of this research.

16 *See* Sections 1.5.2.4. to 1.5.2.7 of this research.

17 ICAO, 'Council Report (Doc 7367) A7-P/1: Report of the Council to the Assembly on the Activities of the Organization in 1952' (1952) 36. For an example, please *see* the description of the historical background of ICAO Annex 2 on Rules of the Air to the Chicago Convention in ICAO, *Annex 2 – Rules of the Air* (10th edn, 2005) Foreword.

18 Pursuant to its mandatory legislative function vested according to Article 54(l) of the Chicago Convention (1944), and based on recommendations made by expert delegations from the ICAO Member States who formed the Air Navigation Commission. *See*, ICAO, 'Council Report (Doc 7367) A7-P/1: Report of the Council to the Assembly on the Activities of the Organization in 1952' (1952) 38. According to Prof. Weber, this is a standard setting for the adoption of SARPs. *See* Weber L, *International Civil Aviatoin Organization – An Introduction* (Wolters Kluwer 2007) 33.

19 Chicago Convention (1944), art 54(l): "Adopt, in accordance with the provisions of Chapter VI of this Convention, international standards and recommended practices; *for convenience, designate them as Annexes to this Convention*; and notify all contracting States of the action taken; (italics added)."

20 Mendes de Leon PMJ, *Introduction to Air Law* (11th edn, Wolters Kluwer 2022) 353: "States, international and regional organisations, airlines and their personnel, airports, air traffic controllers, manufacturers and maintenance companies each play an important role in fostering this objective." *See also* Section 2.2.1. above. In addition, the legal force

21 Roland HE and Moriaty B, *System Safety Engineering and Management* (John Wiley & Sons 1990) 8.

The ICAO Safety Manuel, which describes the overall approach towards aviation safety for the ICAO Member States, demonstrates the technical evolution factor as the following:

> *"…[A]viation emerged as a form of mass transportation in which identified safety deficiencies were initially related to technical factors and technological failures. The focus of safety endeavours was therefore placed on the investigation and improvement of technical factors (the aircraft, for example)".*[22]

During this time, technical errors, rather than pilot errors, were the main threat to aviation safety as the sole cause of the world's first manned aircraft accidents.[23]

As technical standardisation has matured, technical deficiencies appear less often as the cause of accidents nowadays compared to in the past.[24] However, they still appear to be one of the causes.[25] Technical risks may be overlooked or unseen, and they interact with other factors within the safety paradigm. Therefore, technical evolution is still significant in the safety paradigm.

2.2.4 The human factor

2.2.4.1 The human factor as a cause of an accident or incident

Pilots are positioned as a human element in the context of safety. They have also been subject to the legal dimension of the safety paradigm since the beginning of international civil aviation.

In the early 1970s, international civil aviation shifted its focus on safety from purely technical malfunctions to "less than optimum human performance" or "human error."[26] This was due to the declined frequency of accidents and incidents caused by technical malfunctions.[27] This shift recognised pilots as human operators and potential sources of error in their interaction with the technology.

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22 ICAO, *Safety Management Manual (2013)* (Doc 9859-AN/474, 3rd edn, 2013) 2-2. *See also*, Section 1.7.1 of this research.

23 Martin JD, ADA382312 – The First United States Army Aircraft Accident Report (1909) 11: "The cause of accident was determined to be a technical failure, that is 'the accidental breaking of a propeller blade and a consequent unavoidable loss of control which resulted in the machine falling to the ground…" However, this accident was not a civil aviation accident but a military one. *See also* Stolzer AJ, Halford CD and Goglia JJ, *Safety Management Systems in Aviation* (Ashgate 2010) 41.

24 IATA, *IATA Annual Safety Report – 2022 – Executive Summary and Safety Overview Edition 59* (IATA 2023) 6: "Aircraft malfunction was cited in 21% of the accidents."

25 See, the accidents involving the Boeing Co., referred to in section 1.1.2 of Chapter 1.

26 ICAO, *Human Factors Digest No. 1 – Fundamental Human Factors Concepts (Circular 216-AN/131)* (1989) 3.

27 ICAO, *Safety Management Manual (2018)* (Doc 9859, 4th edn, 2018) 2.1.4, following up in 2.2.1:

The ICAO Safety Manual of 2018 reflects this aspect: [28]

> "… *Human factors ... Aviation became a safer mode of transportation, and the focus of safety endeavours was* extended to include human factors, *including such things as the 'man/machine interface.' Despite the investment of resources in error mitigation,* human factors continue to be cited as a recurring factor in accidents. *Human factors tended to* focus on the individual, *without fully considering the operational and organizational context. It was not until the early 1990s that it was acknowledged that individuals operate in a complex environment that included multiple factors which could affect behaviour*."[29]

This shift in perspective also introduced models like the SHELL model, which illustrates the many internal and external influences on pilots' conduct.[30] Accordingly, identification of pilot actions as isolated causes of accidents has proven challenging, as shown by an accident investigation in 1977. The investigation report drafted by the State of Occurrence contained

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28 ICAO, *Safety Management Manual (2018)* (Doc 9859, 4th edn, 2018) 2.1.4, following up in 2.2.1: "*Human factors is about*: *understanding the ways in which people interact with the world, their capabilities and limitations, and influencing human activity to improve the way people do their work. As a result, the consideration of human factors is an integral part of safety management, necessary to understand, identify and mitigate risks as well as to optimize the human contributions to organizational safety*.", and in 2.2.2: "*safety investigations include the assessment of contributing human factors, examining not only behaviours but reasons for such behaviours* (*context*), *with the understanding that in most cases people are doing their best to get the job done;*" [emphasis added: JC] *See also*, Amalberti R and Wioland L, 'Human Error in Aviation' in Soekha HM (ed), *Aviation Safety* (CRC Press 1997)..

29 *See* Sections 1.1 and 2.2.3 of this research. *See also*, ICAO, *Annual Report of the Council to the Assembly for 1968* (ICAO 1969) 38. While there is a lack of uniform worldwide storage of accident records, this statement is supported by multiple statistics provided by the aviation professionals community, such as the Aviation Safety Network (ASN), that is based on the Flight Safety Foundation's initiative, a non-profit organisation governed by multiple specialists and corporate like Boeing. *See* ASN, 'Fatal Accidents per Year 1946-2019' <https://aviation-safety.net/graphics/infographics/Fatal-Accidents-Per-Year-1946-2019.jpg> accessed 13 October 2024; Aviation Safety network, 'Fatal Accidents per Million Flights 1977-2017' <https://aviation-safety.net/graphics/infographics/Fatal-Accidents-Per-Mln-Flights-1977-2017.jpg> accessed 13 October 2024; Boeing, *Statistical Summary of Commercial Jet Airplane Accidents – Worldwide Operations | 1959 – 2020*, 2021) 9.

30 ICAO, *Human Factors Digest No. 1 – Fundamental Human Factors Concepts* (Circular 216-AN/131, 1989) 5; ICAO, *Safety Management Manual* (Doc 9859, 4th edn, 2018) 2-4. The model was developed in response to an accident in which immediate causes were linked to the pilots' human performance, alongside various 'underlying causes' that failed to mitigate these immediate factors. These underlying causes include elements such as co-pilot performance, the operational environment at the time of the accident, training systems, and the mechanical features of the operation. The model illustrates that any individual, as a critical component within a system, is influenced by procedures, machinery, the environment, and interactions with other personnel. S*ee* UK AAIB, *Report of the Public Inquiry into the Causes and Circumstances of the Accident near Staines on 18 June 1972* (1973) 54-55; Edwards E, *Man and Machine: Systems for Safety* (British Airline Pilots Association 1972) 21-36; Hawkins FH, *Human Factors in Flight* (2nd edn, Aldershot 1993) ch 1.

language that blamed the pilots as the sole cause of the accident,[31] while the State of Registry argued that focusing on pilot blame risks diverting attention from broader safety lessons, which is the focus of accident investigation.[32]

This conclusion reaffirms the *reactive* protection of aviation safety. The combination of factors contributing to the cause of an accident emphasises the complexities involved in determining criminal liability for pilots, who operate within the variables that affect their behaviours.[33] Yet, ICAO stresses that pilots must be identified as individuals who may be blamed for their conduct.

2.2.4.2 Management of pilot behaviour

The consistent mention of the role of pilots in accident investigation reports from the 1970s may signal the shift of the legal perspectives towards a more comprehensive understanding of the criminal liability of pilots. In a statement drawn up during the closing of the 27th ICAO Assembly held in 1989, the President of the ICAO Council emphasised the importance of controlling human factors through improved management practices and information systems, reflecting a global commitment to integrating human

31 Comision de Accidents (Spain) Subsecretaria de Aviacion Civil, *Joint Report: KLM – PAA, Tenerife, 27 March, 1977 (RI)*, 1978) 58: *"Now, how is it possible that a pilot with the technical capacity and experience of Captain Veldhuyzen van Zauten, whose state of mind during the stopover at Tenerife seemed perfectly normal and correct, was able, a few minutes later, to commit a basic error in spite of all the warnings repeatedly addressed to him?"*

32 Netherlands Aviation Safety Board, *Final Report and Comments of the Netherlands Aviation Safety Board of the Investigation into the Accident with the Collision of KLM Flight 4805 and Pan America Flight 1736 at Tenerife Airport, Spain on 27 March 1977*, 1977) 57.

33 Scholars recognise this complexity as one of the difficulties involved in the accident investigation. *See* Dempsey PS, 'Independence of Aviation Safety Investigation Authorities: Keeping the Foxes from the Henhouse' (2010) 75(1) Journal of Air Law and Commerce 223, 227. In this article, Prof. Dempsey cites London J, 'Issues of Trustworthiness and Reliability of Evidence from NTSB Investigations in Third Party Liability Proceedings' (2003) 68(1) Journal of Air Law and Commerce 39, 59, which states following: "[T]he aviation industry produces more sophisticated equipment, which often depends on computer-controlled solutions to rapidly changing flight conditions, it is unlikely that NTSB investigators can keep up with the thousands of versions of software, displays, and applications by which modern aircraft are flown and controlled. Increasing demands on air traffic control systems, the proliferation of airways and of off-airway navigation with global positioning devices, and ageing fleets compound the problems." *See also*, Rijsdijk O, 'A Particular Aircraft Accident Litigation Scenario' (2009) 34(2) Air and Space Law 57, that its entirety explores typical complex processes for an aircraft accident litigation following an accident.

factors into legal considerations.[34] The ICAO Assembly Resolution on flight safety and human factors led to a series of ICAO official publications on human factors, which are also relevant to pilots' behaviour.[35] The interest in the behaviour of pilots remained high.

To enhance aviation safety, the international civil aviation community focused on reducing human errors through improved training and better information systems as a form of accident prevention. Thus, the Contracting States of the Chicago Convention (1944) were urged to "enhance accident prevention measures, particularly in the area of personnel training, information feedback and analysis and to implement voluntary and non-punitive reporting systems…" and to "cooperate with ICAO and other States … in the development and implementation of accident prevention measures".[36]

These measures aimed to refine pilots' soft skills, ergonomic design of cockpits and pilots' ability to interpret flight data effectively,[37] which eventually would enhance aviation safety. Clearly, ICAO still emphasised controlling behaviour pre-emptively rather than punishment *ex post facto*.

The human factor received the most attention between the early 1970s and the early 1990s.[38] In this era, aviation became a form of mass transport, evidenced by the rise of low-cost carriers in all parts of the world.[39] That

34 ICAO, *Assembly Minutes A27-Min. P/7: Plenary Minutes of the Seventh Meeting* (1989) 17: "For your Organization to meet its responsibilities, the human factor will be all-important." One contributing factor to aircraft accidents related to human factors was the introduction of new technology, specifically automation. *See also*, ICAO, Assembly Resolution A26-9: Flight Safety and Human Factor (1986). This resolution emphasizes that ICAO Member States should support the development of an information-sharing system. In this context, it references the aircraft automation systems, which were relatively new at the time. Relevant evidence is presented in the following paragraphs of this research.

35 ICAO, *Assembly Resolution A26-9: Flight Safety and Human Factor. See,* for example, the series of the Human Factor Digest published by ICAO, including ICAO, *Human Factors Digest No. 1 – Fundamental Human Factors Concepts (Circular 216-AN/131)* (1989); ICAO, *Human Factors Digest No. 10 – Human Factors, Management and Organization* (Circular 247, 1993); ICAO, *Human Factors Training Manual (Doc 9683-AN/950, 1st edn, 1998).*

36 ICAO, *Assembly Resolution A31-10: Improving Accident Prevention in Civil Aviation* (1995). *See also*, ICAO, *Assembly Working Paper A32-WP/58: ICAO Global Aviation Safety Plan (GASP)* (1998), stating 'ICAO's commitment to a strong accident prevention programme'.

37 ICAO, *Human Factors Digest No. 1 – Fundamental Human Factors Concepts (Circular 216-AN/131)* 16-24. Such soft skills concerned leadership, personality, attitudes, crew coordination, and personal motivation. Ergonomic support refers to the design of the flight deck and cabin design. Lastly, understanding flight documentation to help pilots perceive information adequately and visual performance and collision avoidance were also factors for promoting safety in aviation.

38 ICAO, *Safety Management Manual (2018)* (Doc 9859, 4th edn, 2018) 2.1.4.

39 ICAO, *Assembly Working Paper A39-WP/246: Growth of Low Cost Carriers and Its Impact on the Air Services Industry – Benefit of Republic of Korea* (2016) and ICAO, 'Low Cost Carriers (LCCs)' <https://www.icao.int/sustainability/Pages/Low-Cost-Carriers.aspx> accessed 13 October 2024.

tendency was accompanied by a growing awareness of the public, especially the "travelling public," including in aviation, of safety hazards and demands in that light to enhance the transparency of information, this connecting to the paradigm of Transparency and Just Culture.[40]

Increased attention to transparency led to the need to learn about and publish the factors which had contributed to the causes of accidents, which, in turn, resulted in a quest for subjecting pilots to prosecution and criminalisation if the investigations establishing the cause of the accident or incident, including the human factor, warranted such steps.[41]

The following section explores the dilemma between safety and criminal prosecution in aviation.

2.2.4.3 The dilemma between criminal prosecution and the protection of safety

Because pilots are involved in accidents causing harm and damage, pilots may be subject to criminal prosecution.[42] Serious concerns regarding this point were raised by pilots collectively at the 24th ICAO Assembly, held in 1983. Representatives of IFALPA who attended the Assembly at that time declared the following:[43]

> *"…[Y]our consideration is requested for a problem that is of immediate concern to all airline pilots. The problem that has arisen is the criminal liability of pilots involved in*

40 *See*, ICAO, *Assembly Working Paper A37-WP/103: Transparency of Safety Data* (2010) and Section 2.3.2.1 of this research.

41 *See*, Quinn KP, Trock JE and Gerheim TC, 'Improving Global Aviation Safety by Protecting Information Sources' (2010) 9 Issues in Aviation Law and Policy 243.

42 Section 1.1 of this research.

43 *See*, Van Wijk AA, 'Criminal Liability of Pilots Following an Airline Accident; A History of the Issue within the International Federation of Air Line Pilots' Associations (IFALPA)' (1984) 9(1) Air and Space Law 66, 66. According to Dr Van Wijk, this address was triggered by the court decision in Greece sentencing pilots for manslaughter, criminal negligence and interruption of air traffic. *See also*, ASN, 'DC-8-62 Accident (7 October 1979)' <https://aviation-safety.net/database/record.php?id=19791007-0> accessed 13 October 2024. According to this accident profile, the probable causes are 1) "the crew touched down the aircraft too late, at a speed higher than normal after a non-stabilized final approach," 2)"the crew did not fully apply the braking systems (wheel brakes and reverse thrust) particularly the wheel brakes after a touchdown under known adverse conditions, so that it was not possible to stop the aircraft at least before the end of the overrun area." Meanwhile, there was another opinion on the cause of accident, claimed by the member of the Operations team of the Accident Investigation Committee: "After a non-stabilized approach a too-late touchdown at an increased speed was not realized by the crew. Contributing was the fact that 1) the crew did not follow the company's recommended technique concerning 'landing when braking action is less than good'. 2) Wheel brake application was not fully utilised by the crew at the proper stage of rolling after touchdown. 3) Reverse thrust application was not fully utilised by the crew at the proper stage of rolling after touchdown."

> *civil air transport accidents, and we would welcome a decision for ICAO to study this problem. It is an important and urgent matter, for if it should become commonplace that criminal prosecution becomes common practice, it is inevitable that serious consequences will arise."*[44]

By "serious consequences," IFALPA representatives referred to the potential restrictions on technical investigation as pilots may fear providing all relevant information due to potential criminal charges. This statement was endorsed in the records of an ICAO Assembly meeting.[45]

However, IFALPA also held that aviation safety can only be achieved by information that pilots and other crew members provide "without consideration as to possible personal consequences, those including criminal prosecution."[46] Following this request by IFALPA, several States also responded to concerns with respect to the "imprisonment of pilots in a foreign country following an aircraft accident."[47] While the delegations at the 24th Assembly of ICAO recognised the importance of further scientific research into the topic of criminal liability of pilots in due course,[48] the topic was and is still not included in the program of the Legal Bureau of ICAO.[49] However, the Panel at the discussion held that "this subject deserved consideration" and a "basic research study should be undertaken by the Secretariat."[50]

While no further research had been conducted until the mid-1990s, IFALPA kept this subject on the agenda of ICAO and its own and urged States to establish a simplified, standardised, and universal approach towards the criminal liability of pilots through ICAO.[51] If a codified universal approach

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44 ICAO, *Assembly Minutes A24-Min. P/1-15: Minutes of the Plenary Meetings* (*Doc 9415*, 1983) 154. *See also*, Van Wijk AA, 'IFALPA 38th Annual Conference, 15-22 April 1983 Dublin, Ireland' (1984) 9(2) Air and Space Law 125, 127.

45 ICAO, *Assembly Minutes A24-Min. P/1-15: Minutes of the Plenary Meetings* (*Doc 9415*, 1983) 154.

46 *See*, Van Wijk AA, 'IFALPA 38th Annual Conference, 15-22 April 1983 Dublin, Ireland' (1984) 9(2) Air and Space Law 125, 127.

47 ICAO, *Assembly Working Paper A24-WP/119 (P/60): Report of the Legal Commission on Agenda Items 7, 21 and 22* (1983) 21-3.

48 It is assumed that the delegations of the Netherlands and Chile have presented this concern. *See* Milde M, 'ICAO Legal Committee 25th Session' (1983) 8(3) Air and Space Law 173, 185. The minutes of the relevant Commission do not provide which delegations made such remarks.

49 ICAO, *Assembly Working Paper A24-WP/119 (P/60): Report of the Legal Commission on Agenda Items 7, 21 and 22* (1983) 21-3. *See also* Van Wijk AA, 'IFALPA 38th Annual Conference, 15-22 April 1983 Dublin, Ireland' (1984) 9(2) Air and Space Law 125, Footnote 4.

50 ICAO, *Assembly Working Paper A24-WP/119 (P/60): Report of the Legal Commission on Agenda Items 7, 21 and 22* (1983) 21-3. *See also* Van Wijk AA, 'IFALPA 38th Annual Conference, 15-22 April 1983 Dublin, Ireland' (1984) 9(2) Air and Space Law 125, Footnote 4.

51 ICAO, *Assembly Working Paper A31-WP/112: Statement by the President of the International Federation of Air Line Pilots' Associations (IFALPA)* (1995) 3.

that is applicable worldwide is absent, IFALPA emphasised that pilots would have to rely on their airlines' assistance to understand the applicable legal framework when carrying out their navigational tasks.[52] While not arguing for full immunity,[53] IFALPA urged ICAO Member States as follows:

> *"[W]e would wish that individual States would keep in their minds that there is a need to deal compassionately with completely unintentional and unknown legal infractions in their territory and to keep in mind that the lack of intent and lack of knowledge that an infraction is being committed should be considered as mitigating circumstances when such infractions occur. In other words, air line pilots should not normally be liable to criminal charges occurring during accidents and incidents when there is clear evidence presented that there was no criminal intent involved."*[54]

This part of the statement emphasises that concerns are also related to a lack of legal clarity, as reaffirmed in the following statement:

> *"What we seek here, of course, is not to create any special legal exemption status for air line pilots. Pilots should be subject to negligence charges under law in a manner common to all other persons, but not solely by virtue of the fact that they happened to be the pilot-in-command at the time of an accident."*[55]

In this statement, IFALPA acknowledges that pilots should be, as much as other persons, "subject to negligence charges," and "in a manner common to all other persons" when the cause of an accident is investigated.

However, IFALPA also argues that pilots should not be held criminally liable "when there is clear evidence presented that there was no criminal intent involved." Hence, the position of pilots in the eyes of IFALPA in terms of criminal liability seems to be as follows: on the one hand, they agree that they may be subjected to criminal charges in case of negligent conduct; on the other hand, they should not be subjected to criminal charges when no criminal intent of the pilot can be proven. It is an unusual view which warrents further discussion. In simple terms, negligence may mean that one does not wilfully commit an offence, but they are careless to let it happen. Intent means that one commits the offence knowingly and willingly. An example of classical intent would be taking a gun and shooting

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52 ICAO, *Assembly Working Paper A31-WP/112: Statement by the President of the International Federation of Air Line Pilots' Associations (IFALPA)* (1995) 3: "Instead, just we rely on the company to separate the wheat from the chaff and to provide it in a readily readable form in a language we can understand, so do we rely on using good common sense when it comes to dealing with legal matter on international flights."

53 This view has changed over time. *See* Ch 3 of this research for more details, especially in the analysis of Article 12 of the Chicago Convention (1944).

54 ICAO, *Assembly Working Paper A31-WP/112: Statement by the President of the International Federation of Air Line Pilots' Associations (IFALPA)* (1995) 3.

55 ICAO, *Assembly Working Paper A31-WP/112: Statement by the President of the International Federation of Air Line Pilots' Associations* (*IFALPA*) (1995) 3, 5-5.

to harm someone, consciously in a controlled manner. Other forms of more extensive intent exist, however, such as that of indirect intent, where the aspect of 'willing' action is replaced by the acceptance of significant risk. It can be difficult to distinguish between negligence and indirect intent in this sense, while it is unclear how IFALPA understands these subjective elements and therewith draws a line between cases in which pilots should and should not be excluded from criminal prosecution and liability.

The following sections of this chapter and the national legislation of selected jurisdictions, as to be explored in Chapter 4, clarify further which "criminal charges" can be and have been brought in cases involving the conduct of pilots in aviation accidents and incidents.

2.2.5 'The organisational factor'

2.2.5.1 Overview of the organisational factor

In the 1990s, the international civil aviation community started recognising the important influence of 'organisations' on other aviation actors, including pilots.. These organisations include service providers and/or stakeholders in the aviation sector.[56] That increased influence led to the advent of the 'organizational accident'.[57]

'Organizational accidents' occur because of the "relationship between systems and human elements,"[58] influenced by "organizational decisions and attitudes."[59] These influences can vary from "policy making, planning, communication, allocation of resources and supervision."[60] With the emphasis on the involvement of "many people operating at different levels of their respective companies" in organisational accidents, proper defences at an organisational level may prevent an accident. [61] Again, this raises the question of whether it is possible to isolate pilots' actions and

56 According to various ICAO documents, the term ' organisation' in the context of international civil aviation refers to service providers. These organisations include airlines, maintenance organisations, aerodrome operators, regulators, and many others. Additionally, ICAO uses the term 'operator' rather than airline. *See*, ICAO, *Safety Management Manual (2012)* (Doc 9859-AN/474, 3rd edn, 2012) 139; ICAO, *Assembly Working Paper A40-WP/96: Insight Human and Organizational Factors Analysis in Aircraft Accident and Incident Investigation* (2019).

57 For an extensive analysis of this term, *see* Reason J, *Managing the Risks of Organizational Accidents* (Ashgate Publishing 1997).

58 Reason J, 'Achieving a Safe Culture: Theory and Practice' (1998) 12(3) Work & Stress 293, 295. *See also*, Reason J, *Managing the Risks of Organizational Accidents* (Ashgate Publishing 1997) 1.

59 FAA, 'Safety Management System' <https://www.faa.gov/about/initiatives/sms/explained/basis#scenario> accessed 13 October 2024.

60 ICAO, *Safety Management Manual (2012)* 2-4.

61 Reason J, *Managing the Risks of Organizational Accidents* (Ashgate Publishing 1997) 1 and 7.

inactions contributing to 'organizational accidents' from the influence of the organisational factor.

To manage organisational factors, ICAO started introducing the SMS. Defined as "[a] systematic approach to managing safety, including the necessary organisational structures, accountability, responsibilities, policies, and procedures,"[62] the SMS is a "business process that must be considered at the same level and along the same lines as any other business process."[63] In other words, it is an "on-going and routine" activity consisting of collecting and analysing 'safety data' in everyday activities of the organisations in international civil aviation.[64]

Safety data concern a "defined set of facts or set of safety values collected from various aviation-related sources, which is used to maintain or improve safety."[65] Due to their role in the cockpit during operations, technical investigation reports and pilots' reporting are important inputs in safety data collection, while the data collected potentially entails the pilot's criminal liability.[66]

This point leads to the need to explore 'safety culture', as contemplated in the next section.

2.2.5.2 Safety culture

With the importance of the organisational impact on the pilots' behaviours, a new concept was introduced into the aviation industry called 'safety culture.'[67] Safety culture is defined as the representation and influence "in which safety is managed and understood in the organization" and the reflection of "attitudes, beliefs, perceptions and values that employees share

62 This definition appears in multiple documents of ICAO, but mainly in ICAO, *Annex 19 Safety Management* (2nd edn, 2016) 1-2. This definition is also shared in other documents of ICAO, such as ICAO, *Safety Management Manual (2018)*.

63 ICAO, *Working Paper DGCA/06-WP/6: Implementation of Safety Management Systems (SMS) in States* (2006) 2.

64 ICAO, *Working Paper DGCA/06-WP/6: Implementation of Safety Management Systems (SMS) in States* (2006) 2. *See also*, Sections 1.7.1.4 and 1.8.1 of this research.

65 ICAO, *Safety Management Manual* (Doc 9859, 4th edn, 2018) (vii).

66 *See*, ICAO, Safety Management Manual (Doc 9859, 4th edn, 2018) (vii).

67 Safety culture was introduced after the Chernobyl power plant accident in 1986, as reported in International Nuclear Safety Advisory Group, *Safety Series – INSAG-7 The Chernobyl Accident: Updating of INSAG-1* (International Atomic Energy Agency 1992). Since then, various high-risk industries, including oil, gas, and aviation, started using this term in their analysis of organisational factors. According to Prof. Reason, the concept received significant attention since 1997. *See*, Reason J, 'Achieving a Safe Culture: Theory and Practice' (1998) 12(3) Work & Stress 293.

in relation to safety."[68] It also means the interaction between individuals and organisations.[69] An organisation is marked by a positive safety culture when "front-line personnel tend to feel a sense of shared responsibilities towards achieving the organization's safety objectives."[70] According to this definition, pilots within an organisation with a positive safety culture may feel the shared responsibilities, but their meaning varies per organisation, the location of the organisation, and the aviation actors including pilots as an individual within the organisation.

The connection between safety culture as an organisational factor and the pilot's criminal liability is more evident when considering what this socio-scientific principle entails. Prof. Reason, an expert in safety culture, identified four critical components that interact with each other, while two of those are more relevant to potential criminal liability than the others:[71]

- *Reporting culture*: "An organizational climate in which people are prepared to report their errors and near misses."
- *Just Culture*: "An atmosphere of trust in which people are encouraged, even rewarded, for providing essential safety-related information but in which they are also clear about where the line must be drawn between acceptable and unacceptable behaviors."

Pilots in a positive reporting culture would be more prepared to report their own errors and near misses. However, these cultures do not always consider that pilots' reports designed to enhance safety could give rise to criminal liability as long as Just Culture is not implemented in the domestic legal system. Such cultures do not contemplate the domestic criminal law framework, which may implicate criminal liability in accidents and incidents.

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68 ICAO, *Assembly Working Paper A38-WP/206: Safety Culture and the Future Enhancement of ICAO Provisions Related to SMS Implementation* (2013) 1. Prof. Reason cites the definition provided by Uttal: "shared value (what is important) and beliefs (how things work) and that interact with an organization's structures and control systems to produce behavioural norms (the way we do things around here)" in Reason J, 'Achieving a Safe Culture: Theory and Practice' (1998) 12(3) Work & Stress 293, 294. *See also*, Uttal B, 'The Corporate Culture Vultures' in *Fortune* (Vol. 108 No. 8, 1983).

69 Civil Air Navigation Services Organisation (CANSO) proposes the definition of 'safety culture' to be the following: "[s]afety culture refers to the enduring value, priority and commitment placed on safety by every individual and every group at every level of the organisation. Safety culture reflects the individual, group and organisational attitudes, norms and behaviours related to the safe provision of air navigation services." *See*, CANSO, *Safety Culture Definition and Enhancement Process*, 2008) 2_3. See also, Choi J and Truxal SJ, Accessibility of investigation records from the aircraft accident at Bijlmermeer – A Comparative legal analysis (2024). *See also* Reason J, 'Achieving a Safe Culture: Theory and Practice' (1998) 12(3) Work & Stress 293, ch 2.

70 ICAO, *Safety Management Manual* (Doc 9859, 4th edn, 2018) 3-2.

71 Reason J, *Managing the Risks of Organizational Accidents* (Ashgate Publishing 1997) 195-196.

2.2.6 Systematic Approach

The safety paradigm uncovers even more innovations. One notable and most recent innovation is the 'total systematic approach' toward safety. By the systematic approach, I refer to incorporating State safety management elements and stakeholders' responsibilities within the universal and collective management system devised by ICAO, as already explained in Chapter 1 and Section 2.2.1. above.[72]

Based on ICAO Annex 19, Contracting States institute what is called the State Safety Programme (SSP). The SSP serves as a guide for domestic stakeholders and, therefore, to create their own safety management systems. The SSP should align with ICAO's global strategic safety objectives and plans. Within the SSP, the criminal liability of pilots emerges as a critical concern, as prosecution becomes a legal consequence following safety management failures and their safety culture.

This systemic approach brings a new dimension into the safety paradigm regarding the significance of the interfaces and interactions of contracting States and each stakeholder, affecting safety. These also, in the end, affect the behaviours of pilots.[73]

2.2.7 Protection of information

'Protection of information' pertains to the situation under which information is not, or not always, accessible to the 'general public'. Only a selected number of people and specified governmental organisations are permitted access to this information if the protection of information is applied.

Under the 'Chicago Convention/ICAO regime',[74] which is composed of the provisions of the Chicago Convention (1944) and the various instruments established by ICAO as specified in Chapter 1, records of investigation of accidents and incidents, and other instruments established and governed by ICAO and its rules, are not entirely published for the sake of aviation safety. Section 2.3 below shall briefly clarify the protection of information in the 'Transparency' paradigm context.

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72 This resulted in the adoption of the first edition of ICAO Annex 19. *See,* ICAO, *Annex 19 Safety Management* (1st edn, 2013); Section 3.4.2.2 of this research.

73 *See*, ICAO, *Safety Management Manual* (Doc 9859, 4th edn, 2018) 2-2.

74 Sections 1.5.2 and Chapter 3 of this research.

2.2.8 Implications of the safety paradigm in domestic legislation

2.2.8.1 Overview of domestic legislation

Among all of the 193 Contracting States of the Chicago Convention (1944), Chapter 4 of this study selects three jurisdictions. Before Chapter 4 substantively explores these jurisdictions, the coming subsections see how the Chicago Convention (1944) is incorporated into the domestic legal system as a legal dimension of safety.

The following sections do not yet discuss how SARPs are implemented into the domestic legal system as those require the discussion of Chapter 3 on the international legal framework. Chapter 4 of this study explores the implementation of SARPs in domestic law.

2.2.8.2 The United States of America (US)

The Chicago Convention (1944) is binding in the US. The US adopts a 'mixed' monist-dualist approach to integrating its provisions into its domestic legal framework.[75]

Upon its consent to be bound, and even after the US Senate ratified the Chicago Convention (1944),[76] the Civil Aeronautics Act of 1938 and the Federal Aviation Act of 1968 contain provisions of the Chicago Convention (1944) without explicitly mentioning these.

2.2.8.3 The United Kingdom (UK)

The UK is one of the original signatories of the Chicago Convention (1944). The UK ratified the Chicago Convention (1944) on 11 March 1947. The UK follows a dualist approach by integrating international treaties into domestic law. The Civil Aviation Act of 1949 of the UK implemented the Chicago Convention (1944) in domestic law.[77]

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75 The US Constitution expressly defines the status of treaties of the United States in the following provision: "This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding." *See* US Constitution art VI, § 2. *See also*, Grove Jr. WR, 'International Law – Chicago Convention Interpreted – Discriminatory Airport Charges to Foreign Airlines' (1963) 18(2) University of Miami Law Review 482, 482: "As a treaty, the Chicago Convention is binding on all courts, state and national, as the supreme law of the land."

76 The US Senate approved the ratification on 25 July 1946. *See* Cooper JC, 'Air Transport and World Organization' (1946) 55 The Yale Law Journal 1191, 1195.

77 Civil Aviation Act 1949, c 67, 12, 13 & 14 Geo 6, s 8; Air Safety Support International, *Information Paper 062 – Aviation Law and Regulation in the UK Overseas Territories* (2022) 1.

2.2.8.4 Republic of Korea (ROK)

The ROK follows a monist approach when being bound by international law.

The government of the ROK ratified the Chicago Convention (1944) on 30 November 1953, upon which this Convention became part of the national law without the need for additional legislation.[78]

2.2.8.5 Concluding remarks

Despite their different approaches to treaty implementation, each of the above States must adhere to the SARPs established by the ICAO to maintain global aviation safety and interoperability, unless they have notified ICAO that they find it "impracticable" to do so.[79] While the process for implementation and the substantive legal frameworks vary in these States, as to which see Chapter 4, the goal is the same: to ensure that their civil aviation regulations align with international standards to promote safety, efficiency, and environmental protection in international air transport.

Based on the understanding of safety as spelled out above, the next section contains dissections of how the safety paradigm dynamically supports and opposes vertical and horizontal transparency.

2.3 Transparency

2.3.1 Implications of transparency

'Vertical transparency' is a tool to assist citizens in trusting their government. This term may cover the term transparency as perceived by the general public, including pilots. Dr Buijze holds that transparency is related to "openness and access to information,"[80] in relation to vertical transparency. Referring to Prof. Mock's interpretation, she explains the meaning of transparency as follows:[81]

> *"First, it arises in the context of governmental and organizational action. Second, it involves the availability of information. Third, the audience for or recipients of the infor-*

78 *Constitution of the Republic of Korea* (entered into force 25 February 1988, Constitution No 10, fully revised 29 October 1987) art 6(1).

79 For the reasons set out in Article 38 of the Chicago Convention (1944). *See also* Sections 1.5.2.5 and 1.5.2.6 of this research.

80 Buijze AWGJ, *The Principle of Transparency in EU Law* (PhD thesis, Leiden University 2013) 29.

81 Buijze AWGJ, *The Principle of Transparency in EU Law* (PhD thesis, Leiden University 2013) 29 and 30.

> *mation tend to be defined. Although the target may be as broad as 'the public', it can also be a more limited category. Finally, transparency requires fundamental accuracy and clarity."*[82]

Hence, she asserts that "[t]ransparency is the state that occurs if people can easily ascertain and understand the state of the world and predict how their own actions will affect that world."[83] It is the task of a "transparent government" to make consequences easy for citizens to understand further.[84] This doctrine is also recognised under Article 19 of the International Covenant on Civil and Political Rights,[85] hereinafter the 'ICCPR', providing that States shall commit to providing citizens with access to information, thus contributing to transparency.[86]

Two examples are relevant to vertical transparency in aviation. The first example is laid down in a statement made by one observer at the 39th session of the ICAO Assembly, held in 2016, addressing the need for vertical transparency as follows:

> *"It is not only good governance, but an obligation to afford all civil society observers the same opportunity to engage…. Civil society has a considerable body of expertise built up over decades of work which can contribute to more successful outcomes at ICAO. However, this cannot be fully availed of while ICAO continues its restrictive access to information. Openness will, as a general rule, make Council more productive and transparent, and therefore enhance the legitimacy of its decision-making."*[87]

States "have an obligation under international commitments to involve civil society in its deliberation of climate change issues, but in practice, this

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82 Mock WBT, 'On the Centrality of Information Law: A Rational Choice Discussion of Information Law and Transparency' (1999) 17 John Marshall Journal of Computer & Information Law 1069, 1079-1081.

83 Buijze AWGJ, *The Principle of Transparency in EU Law* (PhD thesis, Leiden University 2013) 31.

84 Buijze AWGJ, *The Principle of Transparency in EU Law* (PhD thesis, Leiden University 2013) 31: "A transparent government is one that provides people with the information they need to ascertain and understand the state of the world and to predict how their own actions will affect that world, and that does not unnecessarily complicate that world."

85 *International Covenant on Civil and Political Rights* (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171 (ICCPR) art 19(2): "Everyone shall have the right to freedom of expression; this right shall include freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of his choice."

86 United Nations Human Rights Committee, *General Comment No 34: Article 19 (Freedoms of Opinion and Expression)*, 102nd Session (2011): "Article 19, paragraph 2 embraces a right of access to information held by public bodies. Such information includes records held by a public body, regardless of the form in which the information is stored, its source and the date of production." *See also*, Choi J and Truxal SJ, *Accessibility of Investigation Records from the Aircraft Accident at Bijlmermeer – A Comparative Legal Analysis*. (2024) s 1.1.3.

87 ICAO, *Assembly Working Paper A39-WP/208: Increased Transparency in ICAO Decision Making* (2016) 3.

is often not the case."[88] Despite the fact that this discussion in the quoted working paper is on climate change, it is illustrative to understand the meaning of transparency serving as a tool for "full and open discussion."[89] It is intended to reach better decisions in relation to market access and economic regulations based on air services agreements, protection of the environment, and technical discussions.[90]

The second instance pertains to the management of information in the context of aviation accidents. ICAO recognises that the key to supporting victims and families concerns "information management, transparency and sharing of information," emphasising the "right to information for the affected individuals and their families."[91] This general understanding of vertical transparency may lead one to think that if an investigation is conducted by the national authorities, technical or judicial investigation records regarding aviation accidents and incidents should, in principle, be transparently available for citizens to access. This point is investigated in the following subsections.

Next to vertical transparency, there is also 'horizontal transparency'. This aspect of transparency refers to the openness and information sharing between entities or departments within organisations or government.[92] In the context of this research, horizontal transparency is relevant to certain information being protected among civil aviation actors, which include individuals, organisations, and States. This aspect is also further investigated in the sections below.

2.3.2 Transparency and the safety paradigm – The Chicago regime

2.3.2.1 Does the Chicago regime contribute to transparency?

As noted in Section 2.3.1 above, vertical and horizontal transparency apply to information access and sharing. This section explores whether the Chicago Convention (1944) and ICAO, through their publications and

88 ICAO, *Assembly Working Paper A39-WP/208: Increased Transparency in ICAO Decision Making* (2016) 5.

89 ICAO, *Assembly Working Paper A39-WP/208: Increased Transparency in ICAO Decision Making* (2016) 2.

90 ICAO, *Assembly Working Paper A39-WP/208: Increased Transparency in ICAO Decision Making* (2016) 1.3

91 ICAO, *Report of the Symposium on Assistance to Aircraft Accident Victims and Their Families (AAAVF 2021)* (2021) 2-3: "Survivors and families of victims need to understand the root cause of the accident to start their physical and psychological recovery. In that sense it was considered vital that the safety investigation provides understandable information about the cause of the accident."

92 *See*, Buijze AWGJ, *The Principle of Transparency in EU Law* (PhD thesis, Leiden University 2013) 33 and Heald DA, 'Varieties of Transparency' in Hood C and Heald DA (eds), *Transparency, the Key to Better Governance?* (Oxford University Press 2006) 29.

other activities, contribute to information access and vertical and horizontal transparency.

On the one hand, the Chicago Convention (1944), SARPs, and other ICAO norms create a worldwide scheme designed to enhance safety. These texts are publicly available online.[93] Most of these SARPs are also publicly available through the official online channel of ICAO.[94] SARPs may also be accessible via various digital platforms. The Chicago Convention (1944) does not restrict public access.[95] Thus, both vertical and horizontal transparency seem to be complied with.

On the other hand, some ICAO provisions are also 'classified' and can be less transparent, especially when they relate to aviation safety and security. The following subsections demonstrate the 'secrecy' aspects that restrict transparency through non-disclosure.

2.3.2.2 Transparency under Annex 17 on security

One of the limited access points for vertical and horizontal transparency in any State is the ICAO Aviation Security Manual, which is part of the ICAO's security-related technical instrument.[96] Only "authorized entities and individuals" are entitled to access this Manual.[97] Even the material purchase must be approved by the ICAO or designated authorities of the ICAO Member States.[98] Similarly, the ICAO Assembly has also more gener-

93 ICAO, 'Convention on International Civil Aviation – Doc 7300' <https://www.icao.int/publications/pages/doc7300.aspx> accessed 13 October 2024.

94 Recently, ICAO facilitated full public access to SARPS in the official languages of ICAO. *See* ICAO, 'ICAO E-Library' <https://elibrary.icao.int/home> accessed 13 October 2024. SARPs and procedures not publicly available at ICAO E-library can be purchased at ICAO, 'ICAO Store' <https://store.icao.int/> accessed 13 October 2024.

95 In addition, for example, the US and Switzerland also support transparency. For the US, see, ICAO, *Assembly Working Paper A37-WP/103: Transparency of Safety Data* (2010): "Due to an increasing demand by the public to have accurate, dependable and reliable information on their choice of air transportation, the United States believes it is the obligation of the global aviation community to provide timely, easily accessible, clear and concise information to maintain the travelling public's confidence in the aviation industry. The United States believes that the travelling public has the right to know whether a State meets international aviation safety Standards and provides appropriate oversight of the air carriers that operate to and from the United States…."

96 ICAO, *Aviation Security Manual (Doc 8973)* (13th edn, 2022).

97 The ICAO website in question does not specify the "individuals" – who must have been authorised by ICAO's Aviation Security Policy Section and/or by the designated authority for aviation security of an ICAO State to have access to the Annex 17 related information; see: https://www.icao.int/Security/SFP/Pages/SecurityManual.aspx

98 ICAO, 'Aviation Security Manual (Doc 8973 – Restricted)' <https://www.icao.int/security/sfp/pages/securitymanual.aspx#:~:text=%E2%80%8BThe%20ICAO%20Aviation%20Security,and%20Recommended%20Practices%20(SARPs).> accessed 13 October 2024.

ally introduced the principle of confidentiality "in recognition of the special sensitivity of information related to aviation security."[99]

Prof. Huang argued that confidentiality is "of the utmost importance" to security audits containing findings that hamper the aviation security of the relevant State.[100] Practically, it means that sensitive information such as security audit reports are "subject to rigorous physical control by ICAO and are strictly protected from the release of any entity other than audited State."[101] Seeing the connection between safety and security,[102] the confidentiality of security-related information of States contributes to supporting the safety of international civil aviation.

The ICAO Assembly has also introduced the principle of a "limited level of transparency."[103] ICAO *urged* States to "share, *as appropriate and consistent with their sovereignty*, the results of the audit carried out by ICAO and the corrective actions taken by the audited State, if requested by another State,"[104] initially,and later *directed* "to keep sensitive information out of the public realm."[105] ICAO continuously checks the level of transparency, as proven by multiple resolutions, in order to implement the principle in the area of aviation security.[106] This particular mechanism of ICAO, namely the security audits, is designed to promote safety.[107]

Therefore, if pilot criminal liability arises from a security breach, relevant materials containing the conduct of pilots and details of how the pilot breaks cockpit security measures or security screening procedures may not be accessible to the general public.

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99 ICAO, *Assembly Working Paper A35-WP/55: Report on ICAO Universal Security Audit Programme* (2004) s 2.1.2.

100 Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 73. Security audits are inspections of the level of security measures and legislation in an ICAO Member State; they are carried out by ICAO officials. The reports contain the implementation status of the security-related SARPs regarding the specific State. The security audits are comparable to USOAP. *See*, Section 1.8.1 of this research.

101 ICAO, *Assembly Working Paper A35-WP/55: Report on ICAO Universal Security Audit Programme* (2004) s 2.1.2.

102 Section 1.7.2.

103 ICAO, *Assembly Working Paper A36-WP/38: Report on ICAO Universal Security Audit Programme* (2007). ICAO uses "limited amount of transparency" with the "limited level of transparency" interchangeably. *See also,* Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 73.

104 ICAO, *Assembly Resolution A35-9 Appendix E: The ICAO Universal Security Audit Programme* (2004) point 4. [*italics JC*]

105 ICAO, *Assembly Resolution A36-20 Appendix E: The ICAO Universal Security Audit Programm* (2007) point 7. [*italics JC*]

106 ICAO, *Assembly Resolution A37-17 Appendix E: The ICAO Universal Security Audit Programme (2010)* point 4.

107 On transparency and confidentiality of security-related materials, *see* Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 77-78.

2.3.2.3 Transparency under Annex 13 on accident investigation

As opposed to the assumption presented in Section 2.3.2 of this research,[108] restrictions on vertical transparency in aviation are explicit regarding accident and incident investigations, that is, in terms of safety. ICAO names this particular protection as the 'principle of protection'.

This principle restricts the vertical transparency of records collected during the technical investigations under ICAO Annex 13 on accident and incident investigations by limiting access of *the general public*.[109] Under the said principle, ICAO urges its Member States to "examine and if necessary adjust their laws, regulations, and policies to *protect* certain accident and incident records in compliance with paragraph 5.12 of Annex 13."[110]

Standard 5.12 of ICAO Annex 13 on the "protection of accident and incident investigation records" ought to be fully quoted because it is the basis of the principle of protection:

> ***"Protection of accident and incident investigation records***
> *5.12 The State conducting the investigation of an accident or incident shall not make the following records available for purposes other than accident or incident investigation, unless the competent authority designated by that State determines, in accordance with national laws and subject to Appendix 2 and 5.12.5, that their disclosure or use outweighs the likely adverse domestic and international impact such action may have on that or any further investigations:*
> *a) cockpit voice recordings and airborne image recordings and any transcripts from such recordings; and*
> *b) records in custody or control of the accident investigation authority being:*
> *1) all statements taken from persons by the accident investigation authority in the course of their investigation;*
> *2) all communications between persons having been involved in the operation of the aircraft;*
> *3) medical or private information regarding persons involved in the accident or incident;*
> *4) recordings and transcripts of recordings from air traffic control units;*
> *5) analysis of and opinions about information, including flight recorder information, made by the accident investigation authority and accredited representatives in relation to the accident or incident; and*
> *6) the draft Final Report of an accident or incident investigation."*

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108 *"This general understanding of vertical transparency may lead one to think that if an investigation is conducted by the national authorities, technical or judicial investigation records regarding aviation accidents and incidents should, in principle, be transparently available for citizens to access."*

109 ICAO, *Annex 13 Aviation Incident and Accident Investigation* (12th edn, 2020)

110 ICAO, *Assembly Resolution A33-17: Non-Disclosure of Certain Accident and Incident Records* (2001) point 1. [*italics JC*] *See also* ICAO, *Assembly Resolution A33-16: ICAO Global Aviation Safety Plan (GASP)* (2001) point 10. It contains the list of the non-disclosure of information and examination and adjustment of the relevant domestic legal framework as one of the safety goals under the ICAO.

Standard 5.12 indicates that the specified records of the accident and investigation may be protected from the public.[111] Appendix 2 of ICAO Annex 13 contains rules for the evidence not to be utilised,[112] especially in criminal, civil, administrative, or disciplinary proceedings.[113]

In essence, the usage of accident and incident records outside the realm of the technical investigation process should be strictly utilised for the *promotion of safety*, which is not only the prime goal of the safety paradigm but also, in conjunction with that goal, the purpose of accident and incident investigations. Indeed, investigations are designed to collect evidence for this particular purpose. Standard 3.1 of ICAO Annex 13 provides that the "sole objective of the investigation of an accident or incident shall be the prevention of accidents and incidents" and that "it is not the purpose of this activity to apportion blame or liability."[114] Hence, the restriction on vertical transparency under the ICAO Annex 13 is to maximise horizontal transparency in aviation safety.[115]

2.3.2.4 Transparency under ICAO Annex 19 on safety management

The principle of protection also applies to recordings made outside the scope of accident investigations. There are two major characteristics.

Firstly, the scope of the protection under ICAO Annex 19 is different. Any "safety data, safety information and related sources" are protected for preventive and proactive safety management purposes under ICAO Annex 19,[116] as long as the ICAO Annex 13 technical investigation representing the preventive mechanism is not instituted.[117]

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111 Which are specified in Standard 5.12, in conjunction with Standard 5.12.5 and Standards 5.2.6, read in conjunction with Appendix 2 of ICAO Annex 13. *See*, ICAO, *Annex 13 Aviation Incident and Accident Investigation* (13th edn, 2024).

112 ICAO, *Annex 13 – Aviation Incident and Accident Investigation* (13th edn, 2024) 5.12.6: *"Note – Appendix 2 contains additional provisions on the protection of accident and incident investigation records. These provisions appear separately for convenience but form part of the SARPs."*

113 ICAO, *Annex 13 – Aviation Incident and Accident Investigation* (13th edn, 2024) Appendix 2, 4.1. *See also*, Note 1 of the same Appendix 2 which provides that "the disclosure or use of records listed in Chapter 5, 5.12, in criminal, civil, administrative or disciplinary proceedings, or their public disclosure, can have adverse consequences for persons or organizations involved in accidents and incidents, likely causing them or others to be reluctant to cooperate with accident investigation authorities in the future. The determination on disclosure or use required by 5.12 is designed to take account of these matters."

114 ICAO, *Annex 13 – Aviation Incident and Accident Investigation* (13th edn, 2024) Standard 3.1.

115 Additionally, ICAO, *Annex 13 – Aviation Incident and Accident Investigation* (13th edn, 2024) Standard 2.3 on non-disclosure of audio or image recordings to the public. In its note, ICAO provides that the disclosure of audio or image recordings in the cockpit may be perceived as an interruption against privacy at one's workplace. *See also*, ICAO, *Assembly Resolution A35-17: Protecting Information from Safety Data Collection and Processing Systems in order to Improve Aviation Safety* (2004).

116 *See* Section 1.7.1.1 of this research.

117 ICAO, *Annex 19 Safety Management* (2nd edn, 2016) APP-3.1.

Secondly, these sources may be used for "the proper administration of justice,"[118] including criminal liability. ICAO Annex 19 does not explicitly exclude criminal liability.

2.3.3 Just Culture – the balance and conflict between safety and transparency

As previously explained, Just Culture represents the intersection of safety with both vertical and horizontal transparency. It promotes horizontal and internal transparency within the aviation industry while limiting vertical transparency. This approach aims to ensure that the right information is disclosed after an accident or incident, with the goal of understanding the events and preventing future occurrences. However, the issue becomes more complex when defining the boundaries of horizontal transparency.

The challenge lies in determining who is included in the "aviation community" and whether enforcement bodies are part of this group. Since some enforcers operate both inside and outside the aviation community to ensure the disclosure of relevant information, Just Culture advocates for internal horizontal transparency over vertical transparency.

Vertical transparency involves individuals outside the aviation community—such as victims, private citizens, civil litigants, pilots, and manufacturers—who seek to understand what happened during an incident. Prosecutors, in particular, may sometimes be considered part of this group if their role is to hold pilots accountable. While Just Culture generally restricts vertical transparency when it is unnecessary, there is ambiguity around when such restrictions should apply.

Ultimately, horizontal transparency often contrasts with vertical transparency, and Just Culture serves as a framework balancing the two. However, the interactions between these forms of transparency are not always clearly defined.

2.3.4 Domestic legislation of selected States

2.3.4.1 Overview of the domestic legislation on transparency of selected States

As discussed above, ICAO does not always prioritise transparency for safety reasons. However, transparency, or access to information, is a fundamental right established in law, as outlined in the following subsections. Some States, such as Korea, recognise transparency as a constitutional right,

118 ICAO, *Annex 19 Safety Management* (2nd edn, 2016) APP-3.1

while others, including the US, UK, Switzerland, and Sweden, regulate it through specific legislation.

2.3.4.2 The United States of America (US)

The US Constitution neither explicitly lays down the right to know nor refers to transparency.[119] Under the First Amendment, citizens have the right to petition, which includes demands to exercise the powers of the government to further the interest and prosperity of the petitioners.[120] Hence, there is an indication of vertical transparency.

In addition, the US federal government enacted the Freedom of Information Act (FOIA) in 1967,[121] hereinafter the 'US FOIA', which imposes an obligation on federal agencies to make the information relevant to the functions of the organisations and opinions or policy statements available to the public.[122] Access to such information is not unrestricted.[123] Finally, The US Department of Justice reaffirmed the "government's 'commitment to accountability and transparency'."[124]

2.3.4.3 The United Kingdom (UK)

In the absence of a single codified constitution, the right to information, seeking transparency, is still recognised under the Freedom of Information Act 2000 in the UK,[125] hereinafter the 'UK FOIA'. Next to this, to achieve

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119 Nevertheless, interviewees stated that transparency is the governmental theme of the US.

120 *See, 'Doctrine on Freedoms of Assembly and Petition'* (Constitution Annotated, Legal Information Institute, Cornell Law School) <https://www.law.cornell.edu/constitution-conan/amendment-1/doctrine-on-freedoms-of-assembly-and-petition> accessed 13 October 2024.

121 US Freedom of Information Act of 1967, as amended by the FOIA Improvement Act of 2016 (Public Law No. 114-185).

122 US Freedom of Information Act of 1967, as amended by the FOIA Improvement Act of 2016 (Public Law No. 114-185) § 552.

123 US Freedom of Information Act of 1967, as amended by the FOIA Improvement Act of 2016 (Public Law 114-185, 114th Congress) s 8(A): "An agency shall— "(i) withhold information under this section only if— "(I) the agency reasonably foresees that disclosure would harm an interest protected by an exemption described in subsection (b); or "(II) disclosure is prohibited by law; and "(ii)(I) consider whether partial disclosure of information is possible whenever the agency determines that a full disclosure of a requested record is not possible; and "(II) take reasonable steps necessary to segregate and release non-exempt information; and "(B) Nothing in this paragraph requires disclosure of information that is otherwise prohibited from disclosure by law."

124 U.S. Office of the Attorney General, *Memorandum for Heads of Executive Department of Agencies: The Freedom of Information Act* (2009). *See also*, U.S. Department of Justice, 'Government Transparency' <https://www.justice.gov/oip/government-transparency> accessed 13 October 2024.

125 Freedom of Information Act 2000 (2000 c 36).

transparency, the UK government also releases information about all of the governmental agencies on a separate online platform.[126]

The UK FOIA (2000) details exemptions pursuant to which the right of access to information should either not be allowed or would be qualified.[127] *Absolute exemptions* refer to categories of information that are completely exempt from disclosure from disclosure required by the relevant legal framework. Those include security-related information, court records, personal information and statutory prohibitions on disclosure and contempt of court considerations. *Qualified exemptions* include information pertaining to defence and international relations, as well as investigations and proceedings conducted by public authorities.[128] Hence, information gathered by the bureau conducting accident and incident investigations in the UK may be subject to the "qualified exemptions" drawn up in the UK FOIA.

UK case law, as discussed in Chapter 4, illustrates the application of these exemptions.

2.3.4.4 Republic of Korea (ROK)

The Constitution of the ROK recognises the right to know under Article 21.[129] This provision grants the freedom of speech and press and freedom of assembly and association, which may seem distant from transparency. However, the Constitutional Court of the ROK holds a particular view on this.

In its decision of 2005,[130] the Constitutional Court held that the freedom granted under Article 21 is traditionally related to the freedom to express and share expressions. To enjoy this freedom, an individual should be able to create their own opinion, which is enabled by accessing information transparently, hence requiring vertical transparency. Therefore, the right to transparency based on access to information is related to Article 21 of the Constitution.

2.3.4.5 Switzerland

Switzerland, together with Sweden, which is discussed in the section below, is one of the States where transparency is of significant weight. Based on the Freedom of Information Act 2006, hereinafter the 'Swiss FOIA', individuals

126 The UK Government, 'Transparency and freedom of information releases' <https://www.gov.uk/search/transparency-and-freedom-of-information-releases> accessed 13 October 2024.

127 Freedom of Information Act 2000 (2000 c 36), s 40.

128 *See*, Freedom of Information Act 2000 (2000 c 36), s 30.

129 *Constitution of the Republic of Korea* (entered into force 25 February 1988, Constitution No 10, fully revised 29 October 1987), art 21.

130 Constitutional Court of Korea, 13 May 1991, Decision 90 Heon-Ma 133, Full Bench [Cancelled], [Constitutional Petition Regarding Request for Record Copy], [Volume 3, 234]

residing in Switzerland may request access to information via the governmental portal. The purpose of this act is the promotion of governmental transparency.[131]

Under this act, access to official documents issued after the entry into force of the Swiss FOIA , that is, 1 July 2006, is granted. For example, the Federal Office of Civil Aviation (FOCA) in Switzerland publicly shares the contents of SARPs and certain procedures as a source of Swiss aviation law, [132] next to domestic law. Citizens may transparently access the substance of most SARPs and find the legal basis of decisions made by FOCA.[133]

However, the Swiss FOIA can be limitedly applicable. For example, public access to certain court proceedings and documents regarding the parliamentary meetings is restricted as for these documents, the Swiss FOIA 2006 does not apply.[134]

2.3.4.6 Sweden

Sweden has a long tradition of promoting transparency. As early as 1766, Sweden adopted the world's first access to information law, which ultimately granted free access to information.[135]

Based on this legacy, the Freedom of the Press Act of 1949 is one of the four fundamental laws that make up the Constitution of Sweden.[136] Article 1 of the Freedom of the Press Act of 1949 recognises the principle of public

131 Federal Act on Freedom of Information in the Administration 2004 (Freedom of Information Act 2004) art 1 (Switzerland).

132 For the official translation of the Chicago Convention (1944) in Switzerland, *see* Switzerland, *Übereinkommen über die internationale Zivilluftfahrt (BS 13 615; BBl 1946 III 608)* at <https://www.fedlex.admin.ch/eli/cc/63/1377_1378_1381/de#fn-d15152e25> accessed 13 October 2024.

133 *See also* Federal Office of Civil Aviation FOCA, 'Publicity Principle' <https://www.bazl.admin.ch/bazl/de/home/themen/bazl_vorstellung/oeffentlichkeitsprinzip.html> accessed 13 October 2024.

134 Federal Act on Freedom of Information in the Administration 2004 (Freedom of Information Act 2004) art 3 (Switzerland). The access to civil proceedings, criminal proceedings, international mutual and administrative assistance proceedings, international dispute settlement proceedings, constitutional and administrative judicial proceedings, arbitration proceedings, consultation for administrative proceedings as well as protected data under Federal Act of 1992 on personal data is restricted. This, to pilots, may mean that the pilots may not be able to refer to the prior adjudications of the court for clarification of their criminal liability.

135 His Majesty's Gracious Ordinance Relating to Freedom of Writing and of the Press of Sweden (1766) §10: "And to that end free access should be allowed to all archives, for the purpose of copying such documents in loco or obtaining certified copies of them…" The translation is found in Anders Chydenius Foundation, *The World's First Freedom of Information Act: Anders Chydenius' Legacy Today*, 2006) 8-17.

136 Sveriges Riksdag, *The Constitution of Sweden: The Fundamental Laws and the Riksdag Act (with an introduction by Magnus Isberg)* (Sveriges Riksdag 2016) 9.

access to information.[137] It also grants transparency to the public and mass media in Sweden regarding public sector activities.[138] It follows that judicial authorities may obtain information from accident investigations or reports based on this right.[139]

As an European Union (EU) Member State, Sweden must abide by EU rules on transparency. At the EU level, there is a *right of access to documents* rather than *information*. By virtue of the Treaty on the Functioning of the European Union,[140] and the Charter of Fundamental Rights of the EU,[141] EU citizens possess the right to ask all EU institutions for documents and to receive answers within 15 working days. Procedures and exceptions to this right are laid down in EU Regulation 1049/2001 regarding *access to Parliament, Council and Commission documents*. EU law has also been enacted for special subjects such as environmental information, where requesters have a more extensive right to information.[142]

Sweden must also adhere to EU Regulation 996/2010 on *the investigation and prevention of accidents and incidents in civil aviation*. This Regulation diplomatically dictates that safety investigation authorities and other authorities are likely to be involved in activities related to the safety investigation, such as the judicial, civil aviation, and search and rescue authorities, cooperate with each other through advance arrangements. These arrangements also pertain to agreements on the retention of flight recorders and any physical evidence "without prejudice to national law."[143] In other words, the right to documentation and information is left to such agreements, arrangements and national law.

2.3.4.7 Concluding remarks

Since air transport and navigation is a global undertaking, all States and public bodies involved with air transport, as well as stakeholders, including airlines, especially their pilots, air traffic controllers, airport operators, and other aviation staff, must understand each other on the basis of global rules and procedures which are accessible to all of these parties. Hence, aviation must be underpinned by publicly available sources. Accessibility of sources serves both the safety and the transparency paradigms.

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137 Freedom of the Press Act of Sweden (1949:105), art 1: "Everyone shall be entitled to have free access to official documents, in order to encourage the free exchange of opinion, the availability of comprehensive information and freedom of artistic creation" (translation provided).

138 Government Office of Sweden Ministry of Justice, *Public Access to Information and Secrecy: The Legislation in Brief* (2020) 7.

139 Piers R and others, *Support study to the evaluation of Regulation (EU) No 996/2010 on the Investigation and Prevention of Accidents and Incidents in Civil Aviation*, 2017) 52.

140 *Treaty on the Functioning of the European Union*, art 15

141 *Charter of Fundamental Rights of the European Union* (CFR), art 42

142 *See*, Directive 2003/4/EC of the European Parliament and of the Council on public access to environmental information and repealing Council Directive 90/313/EEC [2003] OJ L41/26.

143 *See*, Regulation (EU) 996/2020 of the European Parliament and of the Council [2020] OJ L 410/1, art 12.

On the other hand, safety is and should also be protected by limiting access to all sources of information for the reasons set out above. This means that through the promotion of horizontal transparency within the sector for safety, all relevant information can also be protected from prosecutorial authorities. However, the impact of such restrictions on vertical transparency can mean that the public cannot access information, leading to a restriction in their ability to litigate. Not all States, as exemplified by Sweden and Switzerland, wish to create obstacles to accessing these sources of information because they prioritise the rights of their citizens with respect to transparency.

Motivated by interests of and concerns for the safety and security of international civil aviation, provisions of the Chicago Convention/ICAO regime are not always transparent. In such cases, the safety paradigm 'overrules' the transparency paradigm. As said, ICAO Member States have different perceptions of the relationship between the safety and transparency paradigms. Chapter 4 further explores this relationship, as evidenced by national legislation and explained in case law.

2.4 Legal certainty

2.4.1 Legal certainty in relation to safety and transparency

The aim of this section is to demonstrate the legal certainty paradigm in the context of criminal law in conjunction with the safety and transparency paradigms.

The subsections below explain factors impacting legal certainty in criminal law, particularly in special regulatory frameworks and explore how the other two paradigms, safety and transparency, affect the legal certainty paradigm.

2.4.2 Prescripts of legal certainty – foreseeability and accessibility

2.4.2.1 Overview

Legal certainty is a rule of international customary law,[144] but it has also been codified in various multilateral treaties.[145] The principle of legality, from which the prescript of legal certainty follows, appears in the Universal

144 *See* Gallant KS, 'Legality as a Rule of Customary International Law Today & Conclusion: The Endurance of Legality' in Gallant KS (ed), *The Principle of Legality in International and Comparative Criminal Law* (Cambridge University Press 2009).

145 *See* Wise EM, 'General Rules of Criminal Law' 25(2) Denver Journal of International Law and Policy 313; De Souza Dias T, 'Accessibility and Foreseeability in the Application of the Principle of Legality under General International Law: A Time for Revision?' 19 Human Rights Law Review 649; Wright F, 'Certainty and Ascertainability of Criminal Law after the Pitcairn Trials' 39(4) Victoria University of Wellington Law Review 659.

Declaration of Human Rights,[146] the ICCPR,[147] the European Union Charter of Fundamental Rights,[148] the European Convention for the Protection of Human Rights and Fundamental Freedoms, as amended by Protocols Nos. 11 and 14 (ECHR),[149] and the Rome Statute of the International Criminal Court.[150] Also regionally, there are regional instruments covering specific geographical regions to promote such human rights.

In these international treaties, the principle of legality in substantive criminal law is considered "an essential component of the rule of law."[151] Most Contracting States of the Chicago Convention (1944) regard the principle of legality as fundamental in criminal justice systems at the national level and enforce this principle as part of their domestic legislation.[152] As with all criminal law, criminal air law must also be designed and applied in accordance with this principle.

As mentioned in Chapter 1 of this study, legal certainty represents a stringent human rights standard. This is only natural as, to achieve the goal of criminal law, an individual's freedoms may be extensively restricted. However, in criminal law, the administration of justice falls under State sovereignty,[153] being the "prerogative of the judicial authorities."[154] This means that there can be differences in the manner in jurisdictions approach as to the degree of clarity required in criminal law. Moreover, the principle of legality itself, including the requirement of legal certainty, represents an open and diffuse norm. Therefore, it is generally challenging to determine, both in abstract and concrete cases, that the clarity of national law is suffi-

146 UN General Assembly, *Universal Declaration of Human Rights*, 10 December 1948, UNGA Res 217 A (III).

147 UN General Assembly, *International Covenant on Civil and Political Rights*, 16 December 1966, United Nations Treaty Series, vol 999, p 171.

148 *Charter of Fundamental Rights of the European Union*, 26 October 2012, 2012/C 326/02. This Charter became legally binding when the Treaty of Lisbon entered into force on 1 December 2009, as the treaty confers on the Charter the same legal value as the Treaties.

149 Council of Europe, *European Convention for the Protection of Human Rights and Fundamental Freedoms*, as amended by Protocols Nos. 11 and 14, 4 November 1950, ETS 5.

150 *Rome Statute of the International Criminal Court* (last amended 2010), 17 July 1998.

151 *Del Río Prada v Spain* [GC], no 42750/09, ECHR 2013, § 75, opinion of the International Commission of Jurists.

152 *See* US Constitution, Fifth and Fourteenth Amendments; Basic Law for the Federal Republic of Germany, art 103; French Penal Code, art 111-3.

153 Van Dam R, 'Preserving Safety in Aviation: "Just Culture" and the Administration of Justice' (2009) 22 Air and Space Lawyer 1, 5. See also, Van Wijk AA, 'Amendment 8 to ICAO Annex 13 ('Aircraft Accident Investigation') – Some (Legally Oriented) Guidance in the Application of Para 5.12 ('Disclosure of Records') At Last' 13 Air and Space Law 193, 200.

154 *See* Section 2.4 and Ölçer FP, 'Margins of Appreciation Compared. Modulation Deference Versus Engagement in ECHR Standards for Public Procurement and (Regulatory) Criminal Justice' in Kichik K and Mordokhov G (ed.), *Public Procurement Law around the World* (Yustitsinform 2022) 639. While Dr Ölçer argues this point based on the Member States under the ECHR jurisdiction, it applies generally even outside the EU.

cient. This is also because the degree of clarity required can vary in different contexts.

Even the principle of legality is thus difficult to apply in a uniform manner, which adds further complexity to the assessment of clarity in the intricate landscape of aviation (criminal) law. At the same time, pilots require clarity, and States have the obligation to implement the principle of legality according to the treaty obligations under several treaties to which nearly all parties of the Chicago Convention (1944) are also party. As some elaboration is required with respect to the precepts of the principle of legality, a brief overview is provided here, particularly of the pertinent case law of the ECtHR.

2.4.2.2 Foreseeability

Foreseeability can be approached in two ways: on the one hand, its role is to provide "maximum certainty" to make the prescribed offence "understandable and predictable."[155] Therefore, it serves to guide citizens by providing a "fair warning."[156] The ECtHR, in its judgment in *The Sunday Times v. UK (1979)*, held that an individual "must be able – if need be with appropriate advice – to foresee, to a degree that is reasonable in the circumstances, the consequences which a given action may entail."[157] Similarly, in its judgment in *Cantoni v. France (1996),* the Court states that foreseeability is satisfied "where the individual can know from the wording of the relevant provision and, if need be, with the assistance of the courts' interpretation of it, what acts and omissions will make him criminally liable."[158] This implies objective foreseeability, meaning a reasonable person, without special expertise, can understand the meaning of the relevant legal framework and consequences.

Further in the judgment in *Cantoni v. France (1996)*, the ECtHR further held the following on foreseeability:

> *"The Court recalls that the scope of the notion of foreseeability depends to a considerable degree on the content of the text in issue, the field it is designed to cover and the number and status of those to whom it is addressed … A law may still satisfy the requirement of*

155 Ficsor K, 'Certainty and Uncertainty in Criminal Law and the Clarity of Norms Doctrine' 59(3) Hungarian Journal of Legal Studies 271, 275-277; *See also* McGarry J, 'Effecting Legal Certainty under the Human Rights Act' 16(1) Judicial Review 66.

156 Prendergast D, 'Douglas v DPP and the Constitutional Requirement for Certainty in Criminal Law' 50 Irish Jurist 235, 235.

157 *The Sunday Times v United Kingdom (No 1) (1979-80) 2 EHRR 245* § 49.

158 *Cantoni v France,* App no 17862/91 (ECtHR, 11 November 1996) § 29. *See also*, among other authorities, *C.R. v the United Kingdom*, 22 November 1995, §§ 32, 33, Series A no 335-C; *S.W. v the United Kingdom*, 22 November 1995, §§ 34, 35, Series A no 335-B; *Streletz, Kessler and Krenz v Germany* [GC], nos 34044/96, 35532/97, 44801/98, § 50, ECHR 2001-II; *Kafkaris v Cyprus* [GC] § 140. All of these are quoted in ECtHR, *Guide on Article 7 of the European Convention of Human Rights* (2024).

> *foreseeability even if the person concerned has to take appropriate legal advice to assess, to a degree that is reasonable in the circumstances, the consequences which a given action may entail … This is particularly true in relation to persons carrying on a professional activity, who are used to having to proceed with a high degree of caution when pursuing their occupation. They can on this account be expected to take special care in assessing the risks that such activity entails. With the benefit of appropriate legal advice, Mr Cantoni, who was, moreover, the manager of a supermarket, should have appreciated at the material time that, in view of the line of case-law stemming from the Court of Cassation and from some of the lower courts, he ran a real risk of prosecution for unlawful sale of medicinal products."*[159]

This introduces an element of subjective foreseeability,[160] in that the adequacy of may also depend on the individual at issue, acting in a particular context, as it concerns a specific individual in a particular situation.

This element of subjective foreseeability is revisited further in Section 2.4.3. focusing on the special regulatory domains of criminal law.

2.4.2.3 Accessibility

Another qualitative requirement of legal certainty is accessibility, as assessed by the ECtHR.[161] Prof. Gallant interprets this prescript as the "formal or objective requirement that the law actually exists and is publicly available to its subjects with a sufficient level of precision, in case anyone intends to consult it."[162] The ECtHR also explains that accessibility is determined in accordance with the question of whether the relevant law and case law have been made public and whether, where relevant, applicable international law, such as treaties, has become part of the official publication of the domestic legal system.[163] Therefore, if the law is not made public or is not part of the official publication system of the domestic legal system, the court may find a lack of accessibility when formulating its judgment.

When it comes to aviation, accessibility is a concern. Aspects of pertinent legal frameworks may be non-disclosed as seen in Section 2.3.2. above. Sometimes, manuals are hidden, and not everyone knows how to access the differences between ICAO SARPs and domestic legislation. This aspect is revisited in Chapter 3 of this study.

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159 *Cantoni v France,* App no 17862/91 (ECtHR, 11 November 1996) § 35.

160 Please *see*, *Cantoni v France,* App no 17862/91 (ECtHR, 11 November 1996) § 29; *Kafkaris v Cyprus* [GC] § 140; *Del Río Prada v Spain* [GC] § 79.

161 *See also*, the quote of the ECtHR in the preceding section, and Raitio J, 'What is meant by Legal Certainty and Uncertainty' 37(4) Rechtstheorie 393, 400 and 401.

162 Gallant KS, *The Principle of Legality in International and Comparative Criminal Law* (Cambridge University Press 2008) 3. *See also* De Souza Dias T, 'Accessibility and Foreseeability in the Application of the Principle of Legality under General International Law: A Time for Revision?' (2019) 19 Human Rights Law Review 649, 660.

163 *Korbely v Hungary* [GC], §§ 74–75.

2.4.3 Legal certainty in special regulatory domains

2.4.3.1 Overview

According to ECtHR case law, several characteristics are pertinent to its evaluation of foreseeability in special regulatory domains such as criminal air law. In principle, the standards remain strict as Article 7 of the ECHR represents an absolute right. However, the ECtHR does make certain allowances. Some of these features are discussed above in Section 2.4.2.2 of the study regarding the element of subjective foreseeability. Additionally, the following four variables may have an impact on the examination of foreseeability in criminal air law:[164]

- *the fact that collective legal goods and interests in connection to aviation safety are at issue;*
- *that either broad liability constructs containing abstract norms are required to provide an adequately flexible basis of criminalisation, corresponding to the need to protect collective legal goods and interests against harm or endangerment (air criminal law containing such constructs);*
- *that the nature of the domain requires highly detailed and technical criminal offence descriptions, operated through the technique of 'blanket reference', meaning in split-level form mixed regulation, whereby parts of the criminalisation are contained in different international and national sources (such as is the case in the air law regime comprised by the Chicago Convention (1944), ICAO Annexes and other instruments which are spread through various types of norms at domestic levels);*
- *the fact that special norm-addresses with high standards of care, which pilots profoundly are; and*
- *the fact that cross-border law is involved.*

2.4.3.2 'Collective legal goods and interests'[165]

Special regulatory criminal offences often aim to protect collective rather than individual legal goods and interests.[166] Such collective legal goods normally include the "security of the State budget, public assets, stability,

164 While this manuscript deals with criminal air law specifically, Dr Cnossen analyses the special criminal law regarding the road traffic, tax, economic offences, opium and arms and ammunition. *See*, Cnossen JP, *Wisselwerking tussen commuun en bijzonder materieel strafrecht – Een analyse en waardering in het licht van de beginselen van codificatie, schuld en legaliteit* (PhD thesis, Leiden University 2024).

165 Ölçer FP, 'Margins of Appreciation Compared: Modulating Deference versus Engagement in ECHR Standards for Public Procurement and (Regulatory) Criminal Justice' in Kichik K and Mordokhov G (eds), *Public Procurement Law Around the World*, vol II (Yustitsinform 2022) s 5.3.1.

166 Ölçer FP, 'Margins of Appreciation Compared: Modulating Deference versus Engagement in ECHR Standards for Public Procurement and (Regulatory) Criminal Justice' in Kichik K and Mordokhov G (eds), *Public Procurement Law Around the World*, vol II (Yustitsinform 2022) 661.

integrity, and proper functioning of fundamental sectors, public trust in governmental functions, and environmental and public health safety."[167] Prosecution of offences related to these domains seeks to ensure compliance with laws, effectively actualising government policies without necessarily having a direct, identifiable individual victim. Instead, criminal law enforcement is deployed as an instrument to protect against harm or endangerment of the collective goods. International civil aviation's collective legal goods and interests are 'safety' (and 'security'). This is a feature where the safety paradigm and legal certainty can align: if safety so requires, legal certainty can be assessed in light of the need to protect collective goods.

The role of collective legal goods and interests is significant in the context of foreseeability within the special regulatory domain. In the realm of special regulatory offences, which protect collective interests, such as safety, a broad scope of what might constitute a criminal offence often exists. This broad scope can make the examination of foreseeability even more challenging. Courts often have to interpret open-ended legal norms and assess complex interactions of various legislative and regulatory measures, which can blur the lines of what behaviours are legally predictable and which are not.

The articulation and protection of collective legal goods directly influence the determination of foreseeability. When laws are crafted to safeguard these broad, often abstract, collective interests, the specific boundaries of legal infractions can become less clear. Clearly, the definition of safety changes over time, and hence, the foreseeability of criminal air law is not straightforward. This leads to greater reliance on judicial interpretation and potentially broader deference in courts' evaluations of what constitutes a foreseeable offence in this special context.

2.4.3.3 Broad liability constructs[168]

With "broad liability constructs," Dr Olcer refers to the open-ended designation of criminal liability at the legislative level, which leaves significant room for judicial interpretation.[169] This is particularly evident in the case

167 Ölçer FP, 'Margins of Appreciation Compared: Modulating Deference versus Engagement in ECHR Standards for Public Procurement and (Regulatory) Criminal Justice' in Kichik K and Mordokhov G (eds), *Public Procurement Law Around the World*, vol II (Yustitsinform 2022) 661.

168 Ölçer FP, 'Margins of Appreciation Compared: Modulating Deference versus Engagement in ECHR Standards for Public Procurement and (Regulatory) Criminal Justice' in Kichik K and Mordokhov G (eds), *Public Procurement Law Around the World*, vol II (Yustitsinform 2022) s 5.3.3.

169 Ölçer FP, 'Margins of Appreciation Compared: Modulating Deference versus Engagement in ECHR Standards for Public Procurement and (Regulatory) Criminal Justice' in Kichik K and Mordokhov G (eds), *Public Procurement Law Around the World*, vol II (Yustitsinform 2022) s 6.7.7.

of special regulatory offences, where criminalisation often involves open norms and a broad circumscription of liability. Such legal frameworks are designed to protect collective legal interests and goods, often requiring a broad approach to effectively cover these fields' diverse and dynamic nature. An example of such is the "endangerment offence."[170] A similar feature appears in aviation, where a basis for criminal prosecution can be broadly interpreted, especially because the pilot-in-command has the ultimate responsibility for the safety of the aircraft.[171] In combination with the changing understanding of 'safety,' this type of liability construct blurs legal certainty even further.

This brings with it that foreseeability assessments are even more relevant to the interpretation of relevant courts. Moreover, because gradual clarification of norms in case law is allowed,[172] the foreseeability requirements can be low. This flexibility is necessary to address the varied and evolving scenarios within these domains, but it can complicate the ability of individuals to anticipate legal boundaries and outcomes. In the case of *Sîrghi v. Romania (2016)*, the ECtHR held that "the general rules of safety at work" and "the custom in the workplace" as "unwritten rules and custom" may provide sufficiently foreseeability in relation to the law in question,[173] which is rather a deviation from the usual approach of the ECtHR, which generally requires written rules to be in place to provide sufficient foreseeability. In relation to this, Chapter 5 of this study sketches pilots' ability and collective-subjective understanding of certain topics in relation to their potential criminal liability, which reflects the three elements of *Sîrghi v. Romania (2016)* refers to.

Hence, while broad liability constructs provide the legal scope to address complex regulatory issues as much as possible, they also challenge foreseeability, making it difficult for individuals, including pilots, to predict what behaviour might be deemed criminal. This interplay significantly influences judicial interpretation and evaluation in special regulatory cases, balancing the need for comprehensive legal coverage against the rights of individuals to have predictable legal standards.

170 Ölçer FP, 'Margins of Appreciation Compared: Modulating Deference versus Engagement in ECHR Standards for Public Procurement and (Regulatory) Criminal Justice' in Kichik K and Mordokhov G (eds), *Public Procurement Law Around the World*, vol II (Yustitsinform 2022) s 6.7.7.

171 *See* Section 3.4.1.3 of this research.

172 *S.W. v the United Kingdom* (1995) § 36; *Streletz, Kessler and Krenz v Germany* [GC] (2001) § 50; *Kononov v Latvia* [GC] (2010) § 185; *Norman v the United Kingdom* (2021) §§ 60, 66.

173 *Sîrghi v Romania* App no 19870/05 (ECtHR, 4 March 2014) §§ 22–24.

2.4.3.4 Split-level and mixed regulations and principles

The concept of "split-level and mixed regulation" refers to the fragmentation and diversification of legal norms across various legislative instruments and authorities, creating a complex legal framework.[174] In international civil aviation, this complexity is evident in the implementation of the Chicago Convention (1944) and subsequent SARPs, which involve both international and domestic authorities.[175] Principles like Just Culture, while integral to safety culture, add further complexity as their legal status varies across jurisdictions, complicating the regulatory landscape.

This type of regulation, often used in specialised domains, addresses complex and dynamic situations that do not fit neatly into a single legislative framework. The following subfactors illustrate this complexity:[176]

- Complex, fragmented, and mixed norms: In specialised regulatory domains like aviation, norms are complex and spread across multiple sources of law, making it difficult to predict legal consequences. For example, pilots' conduct is governed by several ICAO Annexes and other legal instruments, leading to ambiguous and broad categorisation of offences.
- Broad discretion: Authorities in split-level and mixed regulatory systems have broad discretion to interpret and apply these complex norms. While this allows for flexible responses to complex situations, it also introduces variability in law enforcement, affecting the predictability and foreseeability of legal actions.
- Foreseeability issues through domain interaction: the interaction between different regulatory domains, such as criminal, administrative, and air law, creates an unclear legal landscape. This makes it challenging for pilots to foresee which actions are compliant and which may result in sanctions.
- Relativity and conjunction of different laws: variability arises when different types of laws are applied together within a single framework, leading to inconsistencies in legal standards. For instance, principles like "Just Culture" may only apply within the air law domain, while pilots could still face sanctions under alternate administrative domains or common criminal law.

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174 Ölçer FP, 'Margins of Appreciation Compared: Modulating Deference versus Engagement in ECHR Standards for Public Procurement and (Regulatory) Criminal Justice' in Kichik K and Mordokhov G (eds), *Public Procurement Law Around the World*, vol II (Yustitsinform 2022) 693. *See also*, Kristen F, 'Het Materieelstrafrechtelijk Legaliteitsbeginsel in het Bijzonder Strafrecht' in 2nd (ed), *Bijzonder Strafrecht – Strafrechtelijke Handhaving van Sociaal-Economisch en Fiscaal Recht in Nederland* (Boom juridisch 2019) 428-429.

175 For the implementation of SARPs, *see* Chapters 3 and 4 of this research.

176 Please *see*, Ölçer FP, 'Margins of Appreciation Compared: Modulating Deference versus Engagement in ECHR Standards for Public Procurement and (Regulatory) Criminal Justice' in Kichik K and Mordokhov G (eds), *Public Procurement Law Around the World*, vol II (Yustitsinform 2022) 693.

- Mixed legality standards: the integration of various laws into a single regulatory framework, often without centralised codification, results in mixed regulation. This dispersed nature of norms complicates the pilot's ability to foresee legal consequences, as interpretation is required from the perspectives of multiple sources and contexts.

In the complex legal landscape of aviation, where split-level regulations and mixed legal principles apply, one might argue that objective clarity can still be achieved if courts consistently interpret the relevant laws. However, given the highly technical nature of international civil aviation and the relative scarcity of case law in this field, uniform interpretation is not a straightforward task.

The aviation industry relies heavily on technical standards, which are not only relevant for courts but also for pilots, regulators, and industry professionals who must apply them in practice. The challenge, therefore, is not just about judicial consistency but also about whether those subject to the law, particularly pilots and aviation professionals, can reasonably foresee and understand the legal consequences of their actions within this specialised domain.

2.4.3.5 Special norm addresses with high standards of care[177]

Air law mostly applies to the sector stakeholders, like pilots. While the Chicago Convention (1944) widely covers various matters in international civil aviation, among others, the flight operation rules mainly apply to pilots. These pilots are selected based on the domestic law implementing ICAO Annex 1, which contains various SARPs to train pilots also with respect to the high standards of care. The ECtHR recognises that such individuals are expected to operate with a higher degree of caution and diligence because of their professional status and the potential impacts of their actions on public or collective interests.[178]

This heightened standard of care significantly impacts the assessment of foreseeability in regulatory law. It implies that professionals and entities, due to their expertise and the nature of their responsibilities, should be

177 *See*, Ölçer FP, 'Margins of Appreciation Compared: Modulating Deference versus Engagement in ECHR Standards for Public Procurement and (Regulatory) Criminal Justice' in Kichik K and Mordokhov G (eds), *Public Procurement Law Around the World*, vol II (Yustitsinform 2022) s 5.3.4. *See also*, *Cantoni v France* App no 17862/91 (ECtHR, 11 November 1996) § 35.

178 *Cantoni v France* (1996) § 35; *Pessino v France* (2006) § 33; *Kononov v Latvia* [GC] (2010) § 235; *Advisory Opinion concerning the use of the "blanket reference" or "legislation by reference" technique in the definition of an offence and the standards of comparison between the criminal law in force at the time of the commission of the offence and the amended criminal law* [GC] (2020) §§ 61, 68.

more capable of anticipating the legal implications of their actions, even in the absence of explicit legal clarity. *Cantoni v. France (1996)* affirms that professionals, who are accustomed to exercising caution in their field, like pilots, can be expected to take special care in assessing risks.However, while pilots are held to a high standard of foreseeability, real-time decision making in the operational context does not always allow for legal consultation. This can blur foreseeability for pilots in already complex situations, such as responding to imminent safety threat. They function under extreme pressure with limited information in such cases.

The notion of elevated standards of care supports stricter compliance expectations and aligns with the principle that these professionals can foresee potential legal outcomes more readily than ordinary individuals, thus facing stricter scrutiny under the law. However, *Cantoni v. France (1996)* also recognises that foreseeability does not require absolute clarity and it can still be satisfied when pilots seek appropriate legal advice.[179] While pilots are expected to exercise heightened caution, this expectation shall be applied within the special constraints of the operation of the aircraft, where foreseeability may be challenged by urgent and unpredictable circumstances.

2.4.3.6 Cross-border application of laws in aviation affecting legal certainty

The cross-border nature of aviation presents unique challenges to legal certainty, particularly when multiple jurisdictions, legal systems, and regulatory frameworks come into play. The technical complexity of aircraft operations, combined with the long chain of interacting stakeholders, including governments, regulatory bodies, airlines, airports, and air traffic control agencies, makes air law a particularly intricate domain. This complexity is further compounded by the multilayered legal landscape, which encompasses air law and criminal law in the context of this study.

These factors significantly impact legal certainty in civil aviation, as individuals and entities involved must navigate an evolving legal framework that varies across different jurisdictions. Especially as air transport operates across national boundaries, it raises questions about which jurisdiction's laws apply in regulatory breaches and questions of criminal liability often arise. This, in turn, affects foreseeability, as pilots may struggle to determine which jurisdiction's law applies in a given situation.

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179 *Cantoni v France* (1996) § 35: *"A law may still satisfy the requirement of foreseeability even if the person concerned has to take appropriate legal advice to assess, to a degree that is reasonable in the circumstances, the consequences which a given action may entail (see, among other authorities, the Tolstoy Miloslavsky v. the United Kingdom judgment of 13 July 1995, Series A no. 316-B, p. 71, para. 37). This is particularly true in relation to persons carrying on a professional activity, who are used to having to proceed with a high degree of caution when pursuing their occupation. They can on this account be expected to take special care in assessing the risks that such activity entails."*

2.4.4 Domestic legislation on legal certainty

2.4.4.1 The United States of America (US)

In the US, legal certainty is enshrined in the Constitution. Among other principles, it is reflected in the void for vagueness doctrine, which forms part of the Due Process Clauses of the Fifth and Fourteenth Amendments of the Constitution.[180]

2.4.4.2 The United Kingdom (UK)

In the UK, legal certainty is embedded in several fundamental legal provisions and principles. These ensure that laws are sufficiently clear and precise so that individuals can foresee the legal consequences of their actions. The Human Rights Act 1988 is the most representative legal framework in this aspect. Article 7 of the European Convention on Human Rights, which is the reference point for Section 2.4, is incorporated into UK law by the Human Rights Act.

The UK common law also supports the principle of legal certainty.[181] Courts have developed doctrines ensuring that laws are sufficiently clear and precise. For example, common law has evolved to interpret statutes narrowly when they impose penalties, guaranteeing that individuals have clear warnings of criminal behaviour.

2.4.4.3 Republic of Korea (ROK)

In ROK, legal certainty is grounded in several fundamental legal provisions, most notably within the Constitution. Article 13 of the Korean Constitution provides that no citizen shall be prosecuted for an act that does not constitute a crime under the law. This provision upholds the principle of legality.[182]

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180 *See*, *Connally v General Construction Co*, 269 US 385 (1926), where the Court articulated that a statute must give a person of ordinary intelligence a reasonable opportunity to know what is prohibited; *Papachristou v City of Jacksonville*, 405 US 156 (1972), which struck down a local vagrancy law for being too vague and thus infringing on individuals' rights to due process.

181 *See*, *R v Rimmington; R v Goldstein* [2005] UKHL 63; *B (a minor) v DPP* [2000] 2 AC 428; *Shaw v DPP* [1962] AC 220; *R v Secretary of State for the Home Department, ex parte Simms* [2000] 2 AC 115; *Sweet v Parsley* [1970] AC 132.

182 *See*, Constitutional Court of Korea, 2002Hun-Ma554, 26 June 2003; Supreme Court of Korea, 2007Do2067, 24 May 2007; Constitutional Court of Korea, 2008Hun-Ba47, 26 February 2009.

2.4.5 Concluding remarks

As said, aviation is a cross-border activity involving a myriad jurisdictions, each of which has its own aviation laws and criminal laws. Because the criminal liability of pilots is not governed by a multilateral treaty – or, in fact, any treaty, whether bilateral, plurilateral, or multilateral – pilots are subject to multiple air laws and criminal laws around the world.

Chapter 4 of this study demonstrates that these laws differ per jurisdiction. Moreover, it is be seen in Chapter 4 that they are interpreted differently and that domestic air laws and criminal laws are sometimes synchronised but, at other times, do not accord with each other, obviously affecting the position of pilots in the context of the principle of legality, as explained by the ECtHR and other courts.

The synchronisation of air law and criminal law involves a specific legislative technique known as the "blanket reference" or "legislation by reference." This technique requires criminal offences to be coupled with referencing or referenced regulations.[183]

In the case of pilots' criminal liability, references may, but do not have to, be made to air law, which reflects the safety paradigm in its entirety and is complex in itself.[184] As the ECtHR opines, the foreseeability of the legislation using the blanket reference technique also depends on the instrument and field in hand that the law discusses. In this case, the field in hand is international civil aviation, which Chapter 3 analyses in greater depth.

2.5 Concluding remarks

The purpose of this chapter was not to extensively analyse or debate the substantive content of the paradigms of safety, transparency and legal certainty.. Instead, its goal was to demonstrate that the various paradigms at play are complex and interact in challenging ways. These paradigms do not operate in clear, distinct areas, and they are not always easily connected or identifiable. While the paradigms discussed in this Chapter do not always conflict, aligning them with the criminal liability of pilots remains a challenging task and one of the key objectives of this study.

183 *Advisory Opinion concerning the use of the "blanket reference" or "legislation by reference" technique in the definition of an offence and the standards of comparison between the criminal law in force at the time of the commission of the offence and the amended criminal law* (ECtHR, 2020) para 31. *See also*, ECtHR, *Guide on Article 7 of the European Convention on Human Rights* (2021) 14.

184 *See*, Section 2.2 of this research.

Safety standards in civil aviation are highly complex in many aspects and are subject to change over the course of time. The nature of safety promotion does not allow the framework to be non-complex. The basic norm governing the pilot's ultimate responsibility in aerial navigation creates discretionary room for manoeuvring the aircraft. The assignment of a broad scope of responsibility in hazardous moments of navigation means that it can be challenging to establish criminal liability.

This challenging task holds not only for the objective elements of offences, including facts such as weather conditions and the safe state of the aircraft, forming the conduct in question, but particularly also for the subjective elements. Intent or negligence, which is referred to by IFALPA, are broad concepts and can be variably implemented in law and interpreted differently by courts in different jurisdictions. These concepts will also be influenced by the context of air law and the safety paradigm, as well as the profile of pilots as professionals. Moreover, the safety paradigm itself is evolutive. One evolutionary aspect concerns the recognition of factors that led the industry to shift its focus from pilots' (in)action to organisational and systemic safety. Another evolutionary aspect pertains to the definition of safety, which is accompanied and impacted by technical advancements. All these evolutionary factors make it even more difficult to identify the criminal liability of the pilot.

Lack of transparency and the summarily defined concept of Just Culture will also affect the ultimate determination of the criminal liability of a pilot. The safety paradigm requires horizontal transparency on the basis of the safety norms laid down in the Chicago Convention (1944) and SARPs, which norms are addressed to States and aviation stakeholders. They are designed to enhance safety.

On the other hand, vertical transparency, which establishes the accessibility of information that public authorities must or should provide to their citizens, appears to be primarily restricted to industry stakeholders rather than the general public. Within the aviation domain, information must be subject to non-disclosure, including through the application of Just Culture. What this can mean in practice is that sometimes, not all causes of an accident or incident will be divulged and will not be made subject to prosecution and adjudication. It follows that case law, designed to create clarity with respect to objective elements or the meaning to be attached to intent and negligence in the context of air law, is not always developed.

The concept of Just Culture is somewhat based on limiting both types of transparency to stimulate information flow to protect safety. As such, Just Culture affects the paradigm of legal certainty. For aviation, safety and transparency are crucial for the reasons set out above. These two paradigms perform a balancing act, in which the balance must be found by referencing

domestic law and its interpretation. Domestic law determines the level of transparency and how the conduct of pilots is implemented in each State based on international law.

Based on the understanding of the alignment and understanding of the paradigms, the following Chapter 3 explores the Chicago Convention (1944) regime and how these paradigms interact therein. It further attempts to demonstrate how the air law-specific regime impacts the legal certainty and therewith the criminal liability of pilots.

The complexity of domestic law, as explained in case law of selected jurisdictions, is presented in Chapter 4. This chapter focuses on the question of how these jurisdictions deal with the paradigms discussed above and feature criminal air law in their own way, with a specific focus on the criminal liability of pilots.

3 The international air law dimension

3.1 Scope of the chapter

This chapter is dedicated to core provisions of the international air law regime, in part, in conjunction with national criminal law, regulating the criminal liability of pilots. Chapter 2 defined the legal dimension of the safety paradigm, which plays a prominent role in the special domain of criminal air law and the foreseeability of the legal framework for pilots. The international air law framework regulates the conduct of the pilot and all other elements that can influence the conduct of the pilot and therewith, criminal liability, if they are implemented. As such, this body of law provides detailed prescripts, mainly with respect to the objective aspects of pilot behaviour in operating aircraft.

This Chapter deals with the international air law regime, including the pre-Chicago regime.[1] However, it mainly explores the Chicago Convention (1944), SARPs, and other instruments already identified as sources of air law in Chapter 1. These legal instruments contain norms that pilots can violate and, as such, influence potential criminal liability.

Section 3.2 of this chapter concerns the pre-Chicago Convention regime, especially Article 30 of the draft Paris Convention (1910) and Article 25 and the Annexes of the Paris Convention (1919). It shares the historical development in the written regulatory context when the safety paradigm was named the 'technical era' early on.[2] This regime is relevant as it remains the basis of the Chicago Convention (1944). Section 3.2, therewith, lays a foundation for the interpretation of the current Chicago regime, including Article 12 of the Chicago Convention (1944), which represents the most current criminal air law framework pertaining to pilots.

Section 3.3 focuses on the analysis of Article 12 of the Chicago Convention (1944), the relevance of which as a basis for the criminal liability of pilots lies in its textual reference to 'prosecution.' This term is also specified in SARPs, which are explored in Section 3.4. Article 26 of the Chicago Convention (1944), concerning the investigation of aviation incidents and accidents occurring in international civil aviation, is also the subject of discussion in

1 Section 1.5.1 of this research.
2 Section 2.2 of this research.

Section 3.3 because of its impact on trends in international civil aviation with respect to the criminal liability of pilots, as also follow from SARPs in ICAO Annex 13.

Section 3.4 refers to the SARPs in ICAO Annexes 1, 2, 6, 11, 13, and 19, which Chapter 1 and Section 3.3 of this research identify as global safety regulations relevant to pilots (in)actions. These Annexes elaborate on the criminal liability of pilots under Article 12 of the Chicago Convention (1944) both directly and, more so, indirectly.[3]

International *security* conventions are also referred to, with special reference to the Convention on Offences and Certain Acts Committed on Board Aircraft,[4] hereafter referred to as the 'Tokyo Convention (1963)', as amended by the Protocol to Amend the Convention on Offences and Certain Other Acts Committed on Board Aircraft, hereafter referred to as the 'Montreal Protocol (2014)'.[5] These sources are pertinent because they regulate the authority and responsibility of pilots during the operation of the aircraft in the event of an external offence against aviation safety.

Moreover, other security conventions, including the Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation,[6] henceforth referred to as the 'Montreal Sabotage Convention (1971)', also provide valuable insights regarding the notion of 'prosecution', pertaining again to the pilot's responsibilities with respect to external acts jeopardising the safety of international civil aviation. This notion of 'prosecution' is useful when interpreting Article 12 of the Chicago Convention (1944).

The Conclusion of this Chapter contains a summary of findings with respect to the basis for criminal liability of pilots within the international air law framework.

3 These Annexes contain specifications regarding the licensing of the pilots, rules of the air, operation of the aircraft, interaction between pilots and other personnel in aviation, and accident investigations. Safety management obligation under Annex 19 sets the global scheme for promoting safety for the above-mentioned Annexes under the auspices of ICAO.

4 ICAO, *Convention on Offences and Certain Acts Committed on Board Aircraft*, 14 September 1963 (Tokyo Convention) (ICAO Doc 8364).

5 *Protocol to Amend the Convention on Offences and Certain Other Acts Committed on Board Aircraft* (Montreal Protocol, 2014).

6 ICAO, *Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation*, 23 September 1971, 974 UNTS 177

3.2 Pre-Chicago regime

3.2.1 Draft Paris Convention (1910)

3.2.1.1 Article 30 of the draft Paris Convention of 1910

In the draft Paris Convention of 1910, Article 30 was designed to regulate the criminal liability of pilots. The draft provision reads that:

> *"Each State undertakes to enact that all aircraft within the limits of, or above, its territory, and all its own aircraft within the limits of, or above, the territory of another contracting State shall comply with the "Rules relating to Aerial Traffic" annexed to the present Convention (Annex C) and to punish those which fail to do so."*[7]

This provision is the first attempt to regulate criminal liability recorded in an international treaty framework.[8] The following subsections focus on its applicability to pilots.

3.2.1.2 Annex C of the draft Paris Convention of 1910

According to Article 30 of the draft Convention, the "rules relating to aerial traffic" annexed to the draft Paris Convention of 1910 standardise compliance therewith. As one of the three Annexes existing under the draft Paris Convention (1910),[9] Annex C contains conditions for lights, signals, and manoeuvring of aircraft, amongst others. Chapter III of Annex C, on the manoeuvring of aircraft, specifically prescribes pilots' behaviours, both in terms of how to act and not to act. Annex C is comparable to the Rules of the Air referred to in Article 12 of the Chicago Convention (1944), which Sections 3.3.1 and 3.4.1 of this research further elucidate.

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7 Article 30 of the Draft Paris Convention of 1910: "*Chaque Etat s'engage à prescrire l'observation, par tous les aéronefs dans les limites ou au-dessus de son territoire et par ses aéronefs dans les limites ou au-dessus du territoire d'un autre Etat contractant, des règles contenues dans le Règlement de la circulation aérienne annexé à la présente Convention (annexe C) et à en punir l'inobservation.*" Translation by Prof. Cooper, former Director of McGill's Institute of Air and Space Law. *See* Cooper JC, 'The International Air Navigation Conference, Paris 1910' (1952) 19(2) Journal of Air Law and Commerce 127.

8 Indeed, the draft Paris Convention of 1910 was the first international endeavour to regulate international civil aviation before the Second World War. *See*, Cooper JC, 'The International Air Navigation Conference, Paris 1910' (1952) 19(2) Journal of Air Law and Commerce 127, 127 and 130.

9 Sand PH, De Sousa Freitas J and Pratt GN, 'A Historical Survey of International Air Law Before the Second World War' (1960) 7(1) McGill Law Journal 24, 30: "When the conference adjourned, it had completed a draft convention of 55 articles and 3 annexes, including such subjects as aircraft nationality, registration, rules of the road and photographic and radio equipment in aircraft."

Annex C is unambiguous regarding its explicit rules, reflecting the understanding of safety at the time. The binding nature of Annex C establishes a strict obligation to comply, akin to that of a multilateral treaty, with the aim of safeguarding the general public. The editorial committee that drafted the 1910 Paris Convention confirmed this interpretation by stating that the 'rules relating to aerial traffic' annexed to the Convention possess an absolute character, as expressed in Article 30, and "must be observed everywhere… in the interest of the general public."[10] This wording affirms that deviations from the air navigation rules in Annex C are not permitted and that non-compliance necessitates mandatory enforcement.

However, while the obligation to ensure compliance is stringent, it remains less clear whether the strict duty to prosecute and punish extends beyond explicitly defined rules to cover other behaviours not directly tied to safety concerns, as they were understood at the time. In this regard, the scope of the obligation may encompass diffuse duties, which go beyond explicit requirements, in order to protect third parties on the ground.[11] Section 3.2.1.4 on sanctions revisits the issue of whether the duty to prosecute extends to other behaviours.

3.2.1.3 Aircraft to be in compliance with Annex C

Article 30 of the Draft Paris Convention (1910) provides that aircraft should be in compliance with Annex C.[12] Since pilots operate the aircraft, it might be inferred that pilots, in actual fact, must comply with Annex C.

Against the assumption, Annex C could not apply directly to pilots, as the treaty terms only apply to States upon their consent to be bound, but not to individuals. Therefore, for States to comply with Annex C, States had to take additional steps to domestically enforce compliance over the relevant airspace,[13] including by rendering them applicable to pilots and even airlines that manage pilots.

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10 *1910 PC, Conférence Internationale de Navigation Aérienne, Procès-Verbaux des Séances et Annexes*, Paris (18 May–29 June 1910) 174. *See also* Sections 1.4.1 and 1.5.1.2 of this research on the term 'binding force' and the current binding force of the pre-Chicago Convention regime.

11 Section 1.7.1.2 of this research.

12 Section 3.2.1.2 of this research.

13 Cooper JC, 'The International Air Navigation Conference, Paris 1910' (1952) 19(2) Journal of Air Law and Commerce 127, 133: "States to require observance by all aircraft within or above its territory of the air navigation rules set out in the annex to the convention – a commitment as to the exercise of police power which no State could assume unless the flight-space above its lands and waters were a part of its territory." While Prof. Cooper did not explicitly mention, he probably meant that it is the territorial sovereign power of a State to exercise what he calls the "police power" to observe compliance. However, I interpret this as "autonomy" where States or an autonomous governments exercise their enforcement and adjudicative jurisdiction in the scope of this study. *See* Section 1.4.3 of this research.

3.2.1.4 Sanctions

As said, pursuant to Article 30 of the draft Convention of 1910, States were also required to punish non-compliance with Annex C.[14] The role of punishment for non-compliance seems intended as the protective mechanism of safety through retribution. The drafters mention that whether non-compliance leads to an accident or incident is not a condition for punishment since "prevention is better than repair" and "nothing would be more dangerous than the thought that one can disregard the regulations without punishment if one is lucky enough to avoid accidents."[15] The drafters add, "if the regulation is made well, it is in the general interest that one gets used to observing them."[16]

The ambiguity referred to in Section 3.2.1.2 of this research appears with respect to the term '*punishment*.' Prof. Cooper indicates that the term involves the power of the government to control citizens, which can be closely related to criminal prosecution. However, this interpretation does not mean that the use of the term 'punishment' refers only to 'true' criminal law enforcement. It is also possible that the reference should be understood as allowing for other types of enforcement than criminal prosecution, liability, and punishment. However, there is no clear source supporting this argument, nor is there evidence to the contrary. Likewise, no clear sources indicate that only criminal action would suffice.

In any event, if the term punishment did refer to criminal justice action and liability, that duty related to pilots' behaviours, as already determined in Section 3.2.1.2. Given that pilots operate the aircraft that are subject to Annex C,[17] Article 30 of the draft Paris Convention infers that pilots who navigate an aircraft in a manner that contravenes the prescribed standards laid down in Annex C would be subject to criminal law enforcement and sanctions.

3.2.2 Paris Convention (1919)

3.2.2.1 Article 25 of the Paris Convention (1919)

The Paris Convention (1919) articulates the following provision of Article 25:[18]

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14 Section 3.2.1.1 of this research.

15 *1910 PC, Conférence Internationale de Navigation Aérienne, Procès-Verbaux des Séances et Annexes*, Paris (18 Mai–29 Juin 1910) (1910) 174: «Mieux vaut prévenir que réparer. Rien ne serait plus dangereux que la pensée (jue l'on peut impunément se moquer des règlements si on a la chance d'éviter les accidents. Si le règlement est bien fait, il est d'un intérêt général qu'on s'habitue à l'observer.»

16 *1910 PC, Conférence Internationale de Navigation Aérienne, Procès-Verbaux des Séances et Annexes*, Paris (18 Mai–29 Juin 1910) (1910) 174.

17 *See* Section 3.2.1.3 of this research.

18 Paris Convention (1919), art 25.

> "*Each contracting State undertakes to adopt measures to ensure that every aircraft flying above the limits of its territory and that every aircraft wherever it may be, carrying its nationality mark, shall comply with the regulations contained in Annex D. Each of the contracting States undertakes to ensure the prosecution and punishment of all persons contravening these regulations.*"

This provision reiterates draft Article 30 of the draft Paris Convention in 1910, now, however, embodied in a binding treaty.[19]

Article 25 of the Paris Convention (1919) imposed two obligations on Contracting States. These obligations are to adopt measures to ensure compliance and prosecution and punishment.[20]

Compared to the draft Paris Convention of 1910, the first category of aircraft did not change. Hence, the duty to comply with safety standards came to apply to *any* aircraft flying in the national airspace. However, the description of the second group of aircraft mentioned in the provision was altered, namely to any aircraft flying under a State's nationality mark, regardless of its location. This formulation was incorporated in the redrafted provision in order to fill in a loophole identified in the draft Paris Convention of 1910.[21] With this broader scope, the Paris Convention (1919) sought to promote safety and standardisation in aviation practices, regardless of geographical boundaries, emphasising the importance of the safety paradigm worldwide.

3.2.2.2 Annex D of the Paris Convention (1919) and compliance therewith

Article 25 refers to Annex D of the Paris Convention (1919) as the locale of rules with which compliance must be ensured.[22] In terms of number of stan-

19 *See* Sand PH, De Sousa Freitas J and Pratt GN, 'A Historical Survey of International Air Law Before the Second World War' (1960) 7(1) McGill Law Journal 24, 30. "The conference agreed on the following principles which were to reappear in the Paris Convention of 1919." *See also* Section 1.5.1.2 of this research.

20 These two obligations under Article 25 of the Paris Convention (1919) are somewhat similar but more elaborated than the draft Paris Convention of 1910. For the discussion on the obligations of Article 30 of the draft Paris Convention of 1910, *see* Section 3.2.1.of this research.

21 Article 30 of the draft of 1910 did not cover aircraft flying over non-Contracting States. *See* Section 3.2.1.3 of this research.

22 Section 3.2.2.3 of this research below. The text clarifies what Annex D contains by stating "rules as to lights and signals, rules for air traffic," which can be understood as "rules as to lights and signals, rules of the air." *See* Articles 4 and 15, which refer to Annex D, next to Article 25 of the Paris Convention (1919). *See also* 'Convention for the Regulation of Aerial Navigation' (1923) 17(4) The American Journal of International Law 195, 195 and Note 1. ICAO, 'The Postal History of ICAO – The 1919 Paris Convention: The Starting Point for the Regulation of Air Navigation' <https://applications.icao.int/postalhistory/1919_the_paris_convention.htm> accessed 13 October 2024.

dards (51),[23] this Annex is comparable to Annex C in the draft Convention (1910). Annex D also includes the power to modify and complete the Annex.

Having served as the Secretary General of the International Commission for Air Navigation (ICAN), Dr Roper acknowledges that the Paris Convention (1919) and its Annexes faced significant criticism.[24] One of the key points of contention was the limited representation of all States in the decision-making process. Consequently, their autonomy to regulate their domestic matters, such as criminal liability, would be restricted by their obligation under Annex D.[25]

States were supposed to comply with Annex D of the Paris Convention (1919), which contained two standards that had implications for the criminal liability of pilots.[26] These two standards postulated that nothing in Annex D could release the aircraft, owner, pilot, and crew from the consequences of non-compliance with Annex D, that is, escaping from their duties to comply with Annex D.

Article 25 of the Paris Convention (1919) does not provide for compliance measures. However, Bouvé believes that the intent was that criminal measures would be provided under local law, while no attempt was made to reach an agreement to unify these standards.[27]

3.2.2.3 Prosecution and sanctions

Article 25 of the Paris Convention (1919) also requires the prosecution and punishment of "all persons contravening these regulations," referring to Annex D, which is as binding as a multilateral treaty, which is developed by the League of Nations.

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23 Annex D of the Paris Convention (1919) lists "rules" that the groups of aircraft defined in Section 3.3.2.3 of this research shall comply with. Instead, I take the term "standard" as that, to me, is closer to what Annex D of the Paris Convention (1919) intended to mean based on the authors of the draft Paris Convention (1910) as Section 3.2.1.4 of this study discusses. However, The "standards" referred to in this Chapter are not the same as "Standards" in the context of the Chicago Convention (1944). For Standards relevant to this study, *see* Section 3.4.

24 Roper A, 'The Organization and Program of the International Commission for Air Navigation (C.I.N.A.)' (1932) 3 Journal of Air Law and Commerce 167, 168.

25 It primarily involved the League of Nations only, rather than the comprehensive participation of States. Therefore, States like the US did not ratify the Paris Convention (1919). *See* Latchford S, 'The Bearing of International Air Navigation Conventions on the Use of Outer Space' (1959) 53(2) The American Journal of International Law 405, 406. For participation of the U.S. government in drafting the Paris Convention (1919), *see* Cooper JC, 'United States Participation in Drafting Paris Convention 1919' (1951) 18 Journal of Air Law and Commerce 266.

26 *See* Section VI of Annex D of the Paris Convention (1919).

27 Bouvé CL, 'Regulation of International Air Navigation under the Paris Convention' (1935) 6(3) Journal of Air Law and Commerce 299, 315.

Commentators consider that prosecution and punishment based on the Paris Convention (1919) would mean delegation of jurisdiction, including the power to prosecute these persons on the basis of the rules of ICAN, that is, Annex D, as to criminalisation,[28] that was "under the direction of League of Nations."[29] However, Bouvé rightly points out that "[n]o form of the police power of the State in the sense of authority to administer or enforce such power is vested in the International Commission of Air Navigation under the Paris Convention," that the punishment based on the "action of individuals" requires domestic legislation, and that Annex D is only a technical regulation.[30] Hence, "the duty to control has neither enlarged nor diminished."[31] Thus, ICAN's power to modify and complete Annex D brings with it the power to influence domestic criminal legislation but not the direct power to prosecute pilots.

This discussion clarifies two points. *Firstly*, prosecution and punishment under Article 25 are specifically related to criminal law enforcement and punishment. *Secondly*, prosecution and punishment should be based on national legislation, but that legislation was to be made operational on the basis of Annex D. The legal force of Annex D, and the jurisdiction of ICAN, which was connected to the League of Nations in relation to its substantive content was why the US never ratified the Paris Convention (1919).[32] Possibly, the US did not want to expose their pilots to rules they may not have agreed with.

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28 For the definition of "jurisdiction", please *see* Section 1.4.2. For ICAN, *see* Section 3.2.2.2. above. *See also* Cooper JC, 'The International Air Navigation Conference, Paris 1910' 19(2) Journal of Air Law and Commerce 127, 133. In this specific case, both jurisfaction would remain in ICAN, whereas jurisaction would still be embedded in the State as part of the "police power". Whether this "police power" includes the power to technically or judicially investigate is unclear.

29 ICAO, 'The Postal History of ICAO – International Aviation Organizations Working Alongside ICAN and Dealing Exclusively with Aeronautical Matters' <https://applications.icao.int/postalhistory/international_aviation_organizations_working_alongside_ican_part_1.htm> accessed 13 October 2024. However, the source claims that the "League of Nations never attempted to exercise any authority on the ICAN."

30 Section 3.2.1.4 of this research; Bouvé CL, 'Regulation of International Air Navigation under the Paris Convention' (1935) 6(3) Journal of Air Law and Commerce 299, especially in 315: "… *[N]o individual engaged in international flight in the United States could be "prosecuted" or "punished" for contravening such Annexes and their amendments unless such contravention had, by the domestic law, been made an offense subject to prosecution and punishment. The offense would in such case be an offense against a law of the United States regulating international air flight in the territory of the United States-i.e., an act violative of a law passed by the United States whether viewed as an Act passed by Congress in the exercise of its Federal police powers, in the exercise of its Constitutional power to regulate interstate and foreign commerce, or "as a necessary -and proper means to execute the powers of the government.*

31 Bouvé CL, 'Regulation of International Air Navigation under the Paris Convention' (1935) 6(3) Journal of Air Law and Commerce 299, 315.

32 *See* Section 3.2.2.2 of this research.

3.2.3 Concluding remarks of Section 3.2

This section on the pre-Chicago regime examined the early regulation of the criminal liability of pilots before the coming into force of the Chicago Convention (1944). Scholars of the early days of aviation note that the Paris Conference of 1910 was a "diplomatic failure," even if it was a significantly valuable addition to the evolution of international air law.[33]

Article 30 of the draft Paris Convention (1910) formed one of the reasons for the failure of this Convention. Prof. Cooper suggests that States could not undertake to adopt a regulatory framework pertaining to criminal liability because they were considered to have absolute jurisdiction above their own territories.[34] The adoption of Annex C of the draft Paris Convention of 1910 would have meant that States would have agreed to establish criminal liability of pilots based on non-compliance with Annex C of the draft Paris Convention (1910), which would have implied surrender of their regulatory power. As a result, it never came into force. That is also why many States did not ratify the Paris Convention (1919).

However, one aspect of this early regime remains valid despite the signalled disagreements and political discussions. The drafters of the draft Paris Convention (1910) showed their clear intention to promote safety. Punishment was seen as a tool to achieve this objective.[35]

Considering the above analysis, the following section is dedicated to the Chicago Convention (1944). It aims to analyse the principal provisions of the Chicago Convention (1944) relating to the criminal liability of pilots in aviation accidents.

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33 *See* Sand PH, De Sousa Freitas J and Pratt GN, 'A Historical Survey of International Air Law Before the Second World War' (1960) 7(1) McGill Law Journal 24, 30, Hamilton KA, 'The Air in Entente Diplomacy: Great Britain and the International Aerial Navigation Conference of 1910' (1981) 3(2) The International History Review 169, 169, and Cooper JC, 'The International Air Navigation Conference, Paris 1910' (1952) 19(2) Journal of Air Law and Commerce 127, 127.

34 Cooper JC, 'The International Air Navigation Conference, Paris 1910' (1952) 19(2) Journal of Air Law and Commerce 127, 141. *See also* Sections 1.4.2 and 3.3.1.3 of this research.

35 During the Chicago Conference preparing the Chicago Convention (1944), the representatives of Canada proposed a draft based on two of the mentioned provisions in the pre-Chicago Convention regime, including Article XXXII. This Draft reads as follows: "Each member states undertakes to adopt measures to ensure that every aircraft flying above the limits of its territory and that every aircraft whenever it may be carrying its nationality mark, shall comply with the regulations contained in Annex … Each of the member states undertakes to ensure the prosecution and punishment of all persons contravening these regulations." With a minor revision, that draft provision was adopted and has become the present Article 12. *See also* Section 3.3.

3.3 Principal provisions of the Chicago Convention (1944)

3.3.1 Analysis of Article 12 of the Chicago Convention (1944)

3.3.1.1 Structure of the analysis of Article 12 of the Chicago Convention (1944)

The analysis of Article 12 in this research focuses on the element of 'prosecution'. The last sentence of Article 12 states: "Each contracting State undertakes to insure the prosecution of all persons violating the regulations applicable."

Discussion of this provision is not only of interest because of its pertinence to the topic of this study, being the potential criminal liability of pilots, but also because of its limited exploration in air law research.[36] Previous studies concerning Article 12 of the Chicago Convention (1944) focused on "Rules of the Air", in relation to their legal effect on the high seas or State responsibility.[37] Much less attention has been devoted to the aspect of prosecution,[38] which has led to conflicts in interpretation.[39] Hence, the following sections are dedicated to an analysis of Article 12 in this context.

3.3.1.2 Text of Article 12 of the Chicago Convention (1944)

This study selects Article 12 of the Chicago Convention (1944) as the principal provision in the context of the criminal liability of pilots under the safety paradigm. No amendments have been made to Article 12 since 1944.[40]

Article 12 reads as follows:

> "*Each contracting State undertakes to adopt measures to insure that every aircraft flying over or maneuvering within its territory and that every aircraft carrying its nationality mark, wherever such aircraft may be, shall comply with the rules and regulations relating*

36 *See* Section 1.1.5.

37 *See* Cooper JC, 'The Chicago Convention – After Twenty Years' (1965) 14 Zeitschrift fur Luft- und Weltraumrecht 272, 276, that briefly mentions that Article 12 affirms that the Chicago Convention (1944) deals with rules of the air with its legal effect and Van Dam RD, 'Lease, Charter and Interchange of Aircraft and the Chicago Convention – Some Observations' (1994) 19 Air and Space Law 124 that only briefly mentions that Article 12 contains the State obligation.

38 *See* ICAO, *Legal Committee Working Paper LC36-WP8-2 Common Guidelines on Article 12 of Chicago Convention – Enforcement of Violations Committed by Foreign Air Carriers* (2015) and ICAO, *Assembly Working Paper A40-WP/101: Article 12 of the Chicago Convention: Communication Mechanism and Guidelines to Support Its Implementation* (2019)

39 In 2016, Brazil submitted an application on the interpretation of Article 12 of the Chicago Convention (1944) to ICAO. Section 4.2.4.2 of this research investigates this case more in-depth. Please *see also* ICAO, 'Settlement of Differences' (Unknown) <https://www.icao.int/annual-report-2020/Pages/supporting-strategies-legal-and-external-relations-settlement-of-differences.aspx> accessed 13 October 2024 and Zhang L, *The Resolution of Inter-State Disputes in Civil Aviation* (Oxford University Press 2022) 103-104.

> *to the flight and manoeuver of aircraft there in force. Each contracting State undertakes to keep its own regulations in these respects uniform, to the greatest possible extent, with those established from time to time under this Convention. Over the high seas, the rules in force shall be those established under this Convention. Each contracting State undertakes to insure the prosecution of all persons violating the regulations applicable.*"

Nowhere else does the Chicago Convention (1944) use the word 'prosecution'.[41] However, this complex provision presents several layers of obligations,[42] all of which may impact the interpretation of the conditions for prosecution, as to which see the following sections.

3.3.1.3 The first sentence on ensuring compliance

- *Structure of the first sentence*

The first sentence of Article 12 of the Chicago Convention (1944) demonstrates the complexity of the provision by presenting multiple intertwined obligations therein. *Firstly*, each Contracting State has an obligation to adopt air navigation-related measures in the national airspace, which it must apply to and enforce with respect to all aircraft flying over or manoeuvring within its territory. Dissecting the sentence, the foremost discernible obligation involves the commitment of Contracting States to implement air navigation measures. The measures shall enable aircraft compliance with the "rules and regulations relating to the flight and maneuver of aircraft."

The subsequent sections elaborate on the various obligations arising from this framework, starting from the obligations imposed on aircraft, which I see as the most significant obligation.

- *Scope of application – aircraft in two groups*

The "adopted" measures apply to two categories of aircraft.

The *first* category is comprised of any aircraft overflying or manoeuvring within the territory of the undertaking State regardless of nationality.

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40 During the Chicago Conference preparing the Chicago Convention (1944), the representatives of Canada proposed a draft based on two of the mentioned provisions in the pre-Chicago Convention regime, which is Article XXXII. Article XXXII of the Canadian Draft reads as follows: "Each member states undertakes to adopt measures to ensure that every aircraft flying above the limits of its territory and that every aircraft whenever it may be carrying its nationality mark, shall comply with the regulations contained in Annex … Each of the member states undertakes to ensure the prosecution and punishment of all persons contravening these regulations." *See* texts of draft Article 30 of the draft Paris Convention (1910) and Article 25 of the Paris Convention (191) in Section 3.2.1 and 3.2.2. *See also*, among many other publications, Correa V, 'The Legacy of the 1919 Paris Convention Relating to the Regulation of Aerial Navigation' in Mendes de Leon PMJ and Buissing TN (eds), *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* (Wolters Kluwer 2019) 5.

41 Discussion on the term 'prosecution' occurs in Section 3.3.1.6 of this research.

42 *See* Section 1.5.2.3 of this research.

The *second* category pertains to aircraft carrying the nationality mark of the undertaking States, regardless of the location of the aircraft.[43] The establishment of this second category aligns with what Prof. Cooper insisted, that "each State is reciprocally responsible for the international good conduct of the aircraft having its nationality."[44]

Prof. Cheng opines that by identifying these two categories of aircraft, Article 12 of the Chicago Convention (1944) can ensure compliance in relation to most of the aircraft flying in the world.[45] These two groups of aircraft have not changed since the Paris Convention (1919).[46]

- *Compliance*

The first sentence of Article 12 refers to compliance. Grammatically, compliance means to "act in accordance with a wish or command."[47] Therefore, the aircraft in the two groups discussed are to act following the "rules and regulations relating to the flight and manoeuvre of aircraft."

Compliance with provisions and standards drawn up in the regime governing international civil aviation has early on been recognized as critical for the promotion of safety.[48] Dating back to the pre-Chicago regime, the drafters held that compliance with the Annexes of the Paris Convention (1919) would prevent accidents.[49] Despite the legal force of the SARPs of

43 For the obligation to carry a nationality mark of the State of Registry, *see* Chicago Convention (1944), ch III.

44 Cooper JC, 'Backgrounds of International Public Air Law' (1965) 1 Yearbook of Air and Space Law 3, 3. Regarding the nationality of the aircraft, Article 17 of the Chicago Convention (1944) regulates the matter. The rules for establishing the nationality of an aircraft are laid down in the national legislations of States. The registration of aircraft determines the nationality of the aircraft. However, the registration of an aircraft is dependent on domestic law. To an extent, the registration of aircraft is attached to the owner's nationality. In this case, then, the spirit of the draft Paris Convention (1919) also remains in the Chicago Convention (1944). For example, for the US registry, an aircraft is eligible for the US registry if the owner's nationality or business entity is strongly associated with the US. In the Netherlands, the nationality of an aircraft is not always attached to the owner, unlike in the US. However, if a natural person as an applicant does not reside in the Netherlands or the legal entity as an applicant does not have its registered office in the Netherlands, at least the management should take place in the Netherlands for an aircraft to obtain the Dutch nationality. *See*, the following two websites: FAA, 'Aircraft Registration' (2022) <https://www.faa.gov/licenses_certificates/aircraft_certification/aircraft_registry/register_aircraft> accessed 13 October 2024 and *Regeling aanvraag in- of overschrijving van luchtvaartuigen in het luchtvaartuigregister* (Geldend van 05-11-1999 t/m heden) < https://wetten.overheid.nl/BWBR0009492/1999-11-05/#HoofdstukII> accessed 13 October 2024. See also, Sections 3.2.1.4 and 3.2.2.3 for a comparison of how nationalities were determined under the pre-Chicago Convention regime.

45 Cheng B, *The Law of International Air Transport* (Stevens & Sons Limited / Oceana Publications INC 1962) 139-140. In the end, the two categories cover all aircraft unless the aircraft is unregistered and flying in non-ICAO Member States.

46 *See* Section 3.2 of this research.

47 *Oxford Dictionary of English* (3rd edn, Oxford University Press 2015 (online)), "Comply"

48 *See* Section 2.2 of this research.

49 *See* Section 3.2.2 of this research.

the Chicago/ICAO regime not being as strong as that of the Annexes of the pre-Chicago regime,[50] SARPs are still the primary instrument to guarantee safety in international civil aviation.

- *Rules and regulations relating to the flight and manoeuvre of aircraft*

Article 12 of the Chicago Convention (1944) starts by addressing air navigation rules, that is, "rules and regulations relating to the flight and maneuver of aircraft."[51] Prof. Milde and Prof. Cheng opine that the first sentence of Article 12 imposes an obligation to observe compliance with the Rules of the Air contained in ICAO Annex 2.[52] However, these authors do not elucidate how they interpreted the "rules and regulations relating to the flight and maneuver of aircraft" as Rules of the Air contained in ICAO Annex 2.[53] The following paragraphs attempt to specify the term "rules and regulations" referred to in Article 12 of the Chicago Convention (1944).

The predecessors of ICAO Annex 2 were drawn up in Annexes C and D in the pre-Chicago regime.[54] Apart from the Rules of the Air, these regimes, Annexes C and D, contained rules regarding the operation of the aircraft, air traffic, and aerodromes.[55] Amongst these, only Rules of the Air were contained in ICAO Annex 2, while ICAO Annex 1 included SARPs regarding requirements for an applicant to become a pilot. In 1950, the ICAO Council adopted ICAO Annexes 11 and 14 to cover air traffic and the operation of

50 As mentioned, unlike Annex C in the draft Paris Convention (1910) and Annex C in the Paris Convention (1919) that were considered effective and absolute, opinions on the legal force of SARPs under the Chicago Convention (1944) vary. For a more detailed analysis of the legal force of SARPs, *see* Section 1.5 of this research.

51 Despite the title of Article 12 of the Chicago Convention (1944), the focus of the recent disputes over the interpretation of Article 12 was raised concerning prosecution. Please *see* Section 3.3.1.6 of this research.

52 *See* Milde M, *International Air Law and ICAO* (Essential Air and Space Law, 3rd edn, Eleven International Publishing 2016) 50 and Cheng B, *The law of international air transport* (London [etc.]: Stevens [etc.] 1962) 139 and *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 881-882. In addition to this, Prof. Milde repeated the expression "highway code of the air" multiple times when referring to Annex 2. *See*, Milde M, *International Air Law and ICAO* (Essential Air and Space Law, 3rd edn, Eleven International Publishing 2016) 49, 72 and 78.

53 Annexes to the Chicago Convention (1944) does not define "maneuvering," but it is provided in the ICAO ADREP (or ECCAIRS Aviation) taxonomy. According to the document, "maneuvering" means "an event involving a phase of flight in which planned low-level flight, or attitude, or planned abnormal attitude, or abnormal acceleration occurs," and "low altitude/aerobatic flight operations." In Annex 2 to the Chicago Convention (1944), it is also possible to find the reference to "manoeuver" that it includes taxiing, landing or taking off. Additionally, the FAA of the US refers to "maneuvering" as the phase of flight which involves 'turning, climbing, or descending close to the ground'. *See* ICAO Air Navigation Bureau, 'ADREP Taxonomy – Event Phases (v. 29 April 2013)' (2013) <https://www.icao.int/safety/airnavigation/AIG/Pages/ADREP-Taxonomies.aspx> accessed 13 October 2024, 3-1 and General Aviation Joint Steering Committee, 'Safety Enhancement Topic – Maneuvering Flight' in *FAA Safety Briefing Magazine* (2018)

54 Sections 3.2.1.2 and 3.2.2.2 of this research.

55 Paris Convention (1919), Annex D; Section V.

aerodromes as Annexes which are separate from ICAO Annex 2 on Rules of the Air.[56] As time went by, more Annexes, such as ICAO Annexes 6 and eventually 19, started discussing matters involving the "flight and maneuver of aircraft."[57]

Therefore, notwithstanding that the declaration laid down in ICAO Annex 2 in conjunction with relevant resolutions provides that the "rules and regulations relating to the flight and maneuver of aircraft" are contained in ICAO Annex 2 only,[58] it seems to me that the flight and manoeuvre rules under Article 12 of the Chicago Convention (1944) must cover a variety of ICAO Annexes mentioned below.[59]

Hence, the compliance required in Article 12 of the Chicago Convention (1944) broadly refers to *all* SARPs contained in ICAO Annexes, applying to the flight and manoeuvring of aircraft. ICAO Annexes 1, 2, 6, 11, and 19 also lay down SARPs for flight and manoeuvre.

- *Definition of the term "in force"*

Article 12 of the Chicago Convention (1944) purports to achieve compliance with the flight and manoeuvre rules *in force.* Some commentators interpret this as meaning that aircraft must fly per the local flight and manoeuvre rules of the State they fly over.[60] Additionally, in light of Article 11 of the Chicago Convention (1944),[61] local flight manoeuvre rules must apply to both national and foreign aircraft without discrimination, emphasising the

56 ICAO, *Annex 11 Air Traffic Services* (15th edn, 2018) Foreword and ICAO, *Annex 14 Air Traffic Services Volume I Aerodrome Design and Operation* (9th edn, 2022) Foreword.

57 Cf. Section 3.4.1.4 of this research on ICAO Annex 6. Flight and manoeuvre of aircraft fall under the scope of operational control. Since 2013, specific parts regulating safety management in ICAO Annexes 6 and 11 moved to ICAO Annex 19 on Safety Management. Therefore, ICAO Annex 19 must eventually be included in the set of "rules and regulations" by virtue of Article 12 of the Chicago Convention (1944). *See* ICAO, *State Letter AN 8/3-12/42: Proposal for Annex 19 and related consequential amendments to Annexes 1, 6, 8, 11, 13 and 14, Volume I* (2012)

58 ICAO, *Annex 2 Rules of the Air* (10th edn, 2005) Standard 2.1.1. and Note. *See also*, ICAO, *Assembly Working Paper A40-WP/101: Article 12 of the Chicago Convention: Communication Mechanism and Guidelines to Support Its Implementation* (2019) that refers to Annex 2 only in its interpretation of Article 12.

59 ICAO Annex 2 also references ICAO Annex 6. *See* ICAO, *Annex 2 Rules of the Air* (10th edn, 2005) Standard 3.2, 3.2.3, and Attachment A.

60 *See*, Cheng B, *The Law of International Air Transport* (Stevens & Sons Limited / Oceana Publications INC 1962) 123 and Honig JP, *The Legal Status of Aircraft* (Ph.D. Thesis, Leiden University 1956) 45.

61 Chicago Convention (1944), art 11: "Subject to the provisions of this Convention, the laws and regulations of a contracting State relating to the admission to or departure from its territory of aircraft engaged in international air navigation, or to the operation and navigation of such aircraft while within its territory, shall be applied to the aircraft of all contracting States without distinction as to nationality, and shall be complied with by such aircraft upon entering or departing from or while within the territory of that State."

national treatment principle in international air law.[62] Hence, the same rules regulate the criminal liability of pilots, regardless of the nationality of the pilots or aircraft.

This "in-force" clause is the only difference between the pre-Chicago regime and the Canadian draft, which is the basis of Article 12.[63] Also, this was part of the only revision made during the drafting of Article 12 of the Chicago Convention (1944),[64] as to which see the following discussion.

First and foremost, this "in-force" condition must have been added in accordance with the legal force of SARPs as laid down in ICAO Annexes.[65] The Chicago Convention (1944) does not restrict the autonomy of States to regulate internal affairs.[66]. For ICAO Annexes containing flight and manoeuver rules to be "in-force," these must be implemented into the domestic legal system of a Contracting State.[67]

- *Obligation of Contracting States – types of available measures*

The word "insure" in Article 12 should be understood as "to make certain, especially by taking necessary measures and precautions,"[68] or to "make something certain, or to be certain about something."[69] In the latter case, it

62 *See also,* Dempsey PS, *Public International Air Law* (McGill University 2008) 168.

63 Section 3.3.1.2 of this research.

64 *See Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 688 and above paragraphs on the "rules and regulations relating to the flight and maneuver of aircraft" in the present Section 3.3.1.3.

65 Section 1.5.2 of this research.

66 Dr Honig's interpretation is interesting to visit. He argues that "ICAO has no legislative power" and the Chicago Convention (1944) does not impose any obligation on the States to adopt "Annexes." The initial wording made in the Canadian draft was "in regards to its own nationals" before it was changed to "in force." I only partially agree with his view because I interpreted that the Chicago Convention (1944) obliges Contracting States to notify differences not to implement SARPs. *See* Honig JP, *The Legal Status of Aircraft* (Ph.D. thesis, Leiden University 1956) 49.

67 Under Article 38 of the Chicago Convention (1944) as provided in Section 1.5.2. discussing the legal force of SARPs, Contracting States are *expected* to implement Standards. More precisely, I have established in Section 1.5.2.3. that Standards are binding as long as States have not notified differences based on safety concerns. With the notification of differences based on safety concerns, States will not proceed to implement Standards into the domestic legal framework but will implement the differences. As to Recommended Practices, I concluded in Section 1.5.2.6. that they are not binding, and there is no obligation for States to notify discrepancies. Therefore, I can conclude that the first sentence of Article 12 of the Chicago Convention (1944) recognizes these legal forces of SARPs, and States have the limited freedom to implement SARPs into their domestic legal system. This aspect must be considered when exploring the "measures" that the following paragraphs on the "Obligation on Contracting States" interpret.

68 *Merriam-Webster Dictionary*, 'Insure' <https://www.merriam-webster.com/dictionary/insure> accessed 13 October 2024.

69 *Cambridge Dictionary*, 'Ensure' (2023) <https://dictionary.cambridge.org/> accessed 13 October 2024.

can be interchangeably used with the word 'ensure'.[70] Therefore, the first obligation laid down in this sentence obliges Contracting States to promote compliance with the flight and manoeuvre rules in force with reference to relevant ICAO Annexes referred to in earlier sections above.

As mentioned in the subsection on flight and manoeuvre rules of Section 3.3.1.3, commentators explain that Article 12 imposes an obligation to observe compliance.[71] To me, the function of 'safety oversight' of a Contracting State is also included in the observation of compliance.[72] 'State oversight' is defined as a "function performed by a State to ensure that individuals and organizations performing an aviation activity comply with safety-related national laws and regulations."[73] Therefore, Article 12 imposes the Safety oversight obligation to States exclusively on the flight and manoeuvre rules. However, the oversight duty extends beyond explicit rules that are written and thus, refers to the broader safety paradigm as defined in Chapter 2.

Having the above in mind, I refer to lists of the oversight functions as drawn up by Prof. Huang and Dr Ratajczyk.

According to Prof. Huang, the following measures are designed to ensure safety:

- "*Establishment of safety oversight responsibility on the part of sovereign States*" by setting up the oversight body
- "*Adoption of international standards, recommended practices, and other related material; and*
- *Establishment and implementation of safety oversight and security audit programmes for verifying State compliance with international standards and recommended practices.*"[74]

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70 *Cambridge Dictionary*, 'Ensure' <https://dictionary.cambridge.org/> accessed 13 October 2024.

71 *See* Milde M, *International Air Law and ICAO* (Essential Air and Space Law, 3rd edn, Eleven International Publishing 2016) 50 and Cheng B, *The law of international air transport* (London [etc.]: Stevens [etc.] 1962) 139 and *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 881-882. In addition to this, Prof. Milde repeated the expression "highway code of the air" multiple times when referring to Annex 2. *See*, Milde M, *International Air Law and ICAO* (Essential Air and Space Law, 3rd edn, Eleven International Publishing 2016) 49, 72 and 78. *See also,* Honig JP, *The Legal Status of Aircraft* (Ph.D. Thesis, Leiden University 1956) 49.

72 Section 1.8.1. of this research on ICAO.

73 *See* ICAO, *Annex 19 Safety Management* (2nd edn, 2016) Definition. This is a second definition that has developed over time. The very initial definition, which was set in 1999, presents a stronger link between the function and Article 12 within the safety paradigm. The 1999 definition is as follows: "a function by means of which States ensure effective implementation of the safety-related Standards and Recommended Practices (SARPs) and associated procedures contained in the Annexes to the Convention on International Civil Aviation and related ICAO documents." For the definition, *see* ICAO, *Safety Oversight Manual Part A – The Establishment and Management of a State Safety Oversight System (Doc 9734)* (3rd edn, 2017) Specification 1.1.3.

74 Prof. Huang thoroughly visits each of these mechanisms. For more, please *see* Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009), ch 2.

Based on these activities, ICAO promotes a paradigm of safety to achieve the "technical and operational safety of civil aviation on a worldwide basis."[75]

Dr Ratajczyk interprets that the following functions ensure aviation safety:

- *"Rulemaking, including the development and promulgation of civil aviation safety laws and operating regulations;*
- *Certification and continuous oversight, including the issuance of approvals and continuous assurance that the certificate holder meets the applicable safety requirements; and*
- *Enforcement designed to ensure compliance."* [76]

These mechanisms put forward by Dr Ratajczyk are particularly designed for commercial aviation,[77] but can apply to general aviation as well.[78] Both authors consider the formulation of domestic rules as an additional tool for promoting safety.

Dr Ratajczyk adds "enforcement" as a measure to ensure compliance. Based on his selection of measures, I see that prosecution may also be an enforcement mechanism ensuring compliance by prohibiting violations and preventing accidents. While the pre-Chicago Convention regime also puts forward prosecution and punishment as an enforcement tool,[79] given that the purpose of prosecution and the purpose of administration of criminal justice is also deterrence, I agree with that perception.

3.3.1.4 The second sentence on prescribing uniformity of rule making

- *Structure of the second sentence*

The second sentence of Article 12 of the Chicago Convention (1944) obliges Contracting States to achieve uniformity in the regulations referred to in this provision.[80] This uniformity is subject to the condition that it shall be consistent with regulations which are "established from time to time" under the Chicago Convention (1944). The uniformity must be achieved "to the greatest possible extent."

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75 Huang J, 'Aviation Safety and ICAO' (Leiden University 2009) 21.

76 Ratajczyk M, *Regional Aviation Safety Organisations*: *Enhancing Air Transport Safety through Regional Cooperation* (PhD thesis, Leiden University 2014) 10.

77 Ratajczyk M, *Regional Aviation Safety Organisations: Enhancing Air Transport Safety through Regional Cooperation* (PhD thesis, Leiden University 2014) Chapter 1.

78 Defined as all civil aviation aircraft operations except for commercial air transport or aerial work, defined as specialised aviation services for other purposes. *See ICAO, Annex 6 Operation of Aircraft, vol Part I – International Commercial Air Transport – Aeroplanes (12th edn, 2022).*

79 *See* Section 3.2.1.4 and 3.2.4 of this research.

80 *See* Section 3.3.2.3 of this research. "[T]heir own regulations" referred to in the second sentence mean "rules and regulations relating to the flight and maneuvering of aircraft" that are "in-force" in a Contracting States.

I attempt to visit this obligation in conjunction with the analysis of the first sentence.[81] According to the first sentence, "their own regulations" referred to in the second sentence must mean flight and manoeuver rules that are "in-force" in a Contracting State. Considering my analysis of the first sentence of Article 12 in conjunction with the analysis of the legal force of SARPs,[82] I argue that the second sentence reinforces the obligations under Articles 37 and 38 of the Chicago Convention (1944). These provisions oblige States to implement air navigation rules as adopted by ICAO. States can escape from this obligation by notifying ICAO of their inability to implement such ICAO rules.[83]

- *Uniformity*

The very purpose of the establishment of SARPs is to support ICAO Member States by establishing operational and technical rules through *uniformity*.[84] Views of commentators,[85] definitions of SARPs that present the aim of uniform application,[86] and further efforts for uniform implementation through ICAO's Universal Safety Oversight Audit Programme (USOAP) all support uniformity as the core practice of international civil aviation.[87] In that sense, uniformity underpins the safety paradigm.[88]

81 Section 3.3.1.3 of this research.

82 This research, up to this point, analysed multiple times that Standards have a conditional binding legal force, whereas the Recommended Practices do not have such. In addition, any other technical instruments do not hold the binding force. This was based on the interpretation of Articles 37 and 38, which require Contracting States to collaborate for uniformity but not to stay uniform at all times. Yet, States are obliged to notify differences between "their own regulations" and any Standards pertinent to Annexes to the Chicago Convention (1944). These differences shall be based on impracticability, safety-wise. *See* Sections 1.5.2.5 and 1.5.2.6.

83 As explained in Section 1.5.2 of this research.

84 Chicago Convention (1944), art 37. *See also* the definition of SARPs in Sections 1.5.2.5 and 1.5.2.6 of this research.

85 Dempsey PS, 'Compliance & Enforcement in International Law: Achieving Global Uniformity in Aviation Safety' (2004) 30 North Carolina Journal of International Law 1, 10 and 14, and Milde M, 'Enforcement of Aviation Safety Standards – Problem of Safety Oversight' (1996) 45 Zeischrift fur Luft- und Weltraumrecht 3, 4.

86 Sections 1.5.2.5 and 1.5.2.6 of this research.

87 *See* Sections 1.8.1. To compare: harmonisation of rules and procedures encompasses uniformity. It means combining parts, elements, or related things to create a consistent and orderly whole, not creating an identical application. As Prof. Boodman conceptualised, harmonisation "requires diversity and eschews uniformity," which may mean more complexity, while such complexity has to be pleasing. In addition, harmonisation is only a means to achieve specific goals, but not the goal itself. In other words, harmonisation would still aim for consistency while accepting variations through mutual understanding and cooperation to support the safety paradigm in aviation. Therefore, in my opinion, harmonisation can also be pursued by standardisation but does not require uniformity. *See*, Boodman M, 'Myth of Harmonization of Laws' (1991) 39(4) American Journal of Comparative Law 699, 701-703; Pereira R, *Environmental Criminal Liability and Enforcement in European and International Law* (Queen Mary Studies in International Law, Brill Nijhoff 2015) 142.

88 From the uniformity perspective, the aim of the safety paradigm and legal certainty aligns.

However, in practice, the uniformity underpinning the safety paradigm is somewhat limited due to the absence of genuine binding legal force of SARPs and other technical instruments of the Chicago Convention (1944). Their legal force is not the same as that of the treaty obligations under the Chicago Convention (1944) itself. As stated above, States may notify ICAO of their inability to implement ICAO rules in their national legislation.[89]

- *Those established from time to time under the Chicago Convention (1944)*

The second sentence of Article 12 of the Chicago Convention (1944) obliges Contracting States to keep their own regulations uniform with air navigation rules "established from time to time" under the Convention "to the greatest possible extent." The strength of this obligation is contradicted by arguments of multiple scholars, who claim, based on the grammatical interpretation of Article 37,[90] that SARPs have a rather weak status in that, as explained above, they have no absolute legal force *per se*.

Article 12 does not make a distinction between Standards and Recommended Practices.[91] Therefore, Contracting States must *uniformly* implement *all* norms laid down in ICAO Annexes as established under the Chicago Convention (1944) in their domestic legal systems.

Moreover, Article 12 emphasises the evolutionary nature of SARPs and other technical instruments, which feature relates to the power vested in the ICAO Council. Article 37 of the Chicago Convention (1944) provides that the ICAO "shall adopt and amend" SARPs and procedures, as may appear appropriate "*from time to time*."[92] Vested with this power, the ICAO Council adopts and amends SARPs and other technical instruments as developed and eventually proposed by relevant technical panels.[93] Based on their proposals, the ICAO Council creates new SARPs and amends existing ones.[94] Therefore, Contracting States must continuously implement new and amended SARPs concerning flight and manoeuvre rules.

- *Flexibility in implementation "to the greatest possible extent"*

Yet, there is room for flexibility in fulfilling the obligation under the second sentence. Uniformity is required, but 'only' to the "greatest possible extent."

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89 For the legal force of instruments, including SARPs, *see* Sections 1.5.2.5. to 1.5.2.7 of this research.

90 *See* Sections 1.5.2.5 and 1.5.2.6 of this research.

91 In other words, if it did, the discussion on the legal force of SARPs would have applied to Article 12 of the Chicago Convention (1944).

92 *Italics added*. Article 37 of the Chicago Convention (1944). See also the Council's Mandatory functions under Article 54.

93 Section 1.5.2.1 of this research.

94 *See*, ICAO, 'How ICAO Develops Standards' <https://www.icao.int/about-icao/airnavigationcommission/pages/how-icao-develops-standards.aspx> accessed 13 October 2024.

This formulation is similar to the discussions on the term "impracticability" under Article 38, which was introduced earlier in this research with respect to the legal force of SARPs.[95] Prof. Huang argues that the particular wording of "greatest possible extent" may provide "some reasonable amount of flexibility,"[96] while States should remain faithful to promoting safety under the Chicago Convention (1944).[97]

Arguably, while States must faithfully commit to fulfilling obligations under Article 12, I would like to clarify the formulation of "some reasonable amount of flexibility". It should be understood based on the preparatory work of the Chicago Convention (1944). The drafters of the Chicago Convention (1944), especially those who drafted technical standards, hoped for and expected a particular usage of SARPs and a contribution thereof to the safety of international civil air navigation, in which respect they made particular references to ICAO Annexes 2 and 11.

On the one hand, where ICAO Annex 2 on Rules of the Air is concerned, only limited conditional flexibility is allowed. The baseline expectation of the drafters appears to be full standardisation "in practically every respect," possibly requiring full adherence and, hence, uniformity.[98] However, at the same time, "subject only to the right of each nation to supplement the standard international rules with such national or local rules as its particular situation may require," States could provide supplements in as far as deviant rules are required, which may however never be contrary to specifications under Annex 2.[99]

Concerning ICAO Annex 11 on Air Traffic Service, *on the other hand*, the drafters of Article 12 were more flexible. The preparatory work states that "definite commitment" to adherence is required but is expected with respect to only *Standards* in ICAO Annex 11.[100] For subjects ICAO Annex 11 do not cover, or in the case of Recommended Practices therein, States may create their own supplements.[101]

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95 *See* Sections 1.5.2.5 to 1.5.2.7 of this research.

96 Prof. Huang interpreted this term based on the analysis of the "auto-interpretive international law."

97 Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 50.

98 *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 705.

99 *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 705. In addition, *see* Section 3.3.1.3 of this research.

100 *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 705.

101 *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 703-707.

While the commitments imposed on States by virtue of the above provisions seem similar, I observe differences with respect to the degree of flexibility provided to States for achieving uniformity. While ICAO Annex 2 is fully standardised (and thus does not contain Recommended Practices), no deviations are allowed.[102] Therefore, only to the extent that the supplements do not contradict the Standards contained in ICAO Annex 2, States may provide supplements and publish them. States, however, enjoy more discretionary power under Annex 11.

3.3.1.5 Third sentence – The absolute character of Rules of the Air on high seas

- *Structure of the third sentence*

Unlike the first two sentences, the third sentence of Article 12 holds a simple structure. Yet, its legal implications may be even more complicated.

- *No exceptions on high seas*

The third sentence of Article 12 provides that "[o]ver the high seas, the rules in force shall be those established under this Convention." High seas are open to all States for air navigation and are known as "unassigned airspace."[103] In this area, no State is entitled to claim sovereignty,[104] as confirmed in Article 1, to be read in conjunction with Article 2 of the Chicago Convention (1944), recognising State sovereignty in national territory.[105] According to these provisions of the Chicago Convention (1944), the high seas are formed by the seas that are not part of the territorial seas of States. Hence, no State has autonomy over the area indicated as the airspace over the high seas.

This third sentence adds a layer to the first two sentences of Article 12 of the Chicago Convention (1944). The obligations meant in the first sentence can apply to the navigation of civil aircraft above the high seas only partially because no State can claim either sovereignty or autonomy in the sense of rulemaking powers in the airspace above the high seas. Thus, the Standards drawn up in ICAO Annexes become *the* norms for compliance.[106] The uni-

102 ICAO Annex 2 contains only Standards. However, this has not always been the case, but only since 1951. Before Amendment 1 came into effect on 1 April 1952 and became applicable on 1 September of the same year, Annex 2 contained recommended practices as well. In other words, until 1952, the regular legal authority of ICAO Annexes applied to Rules of the Air, and hence, there would not have been a question. *See* ICAO, *Annex 2 Rules of the Air* (10th edn, 2005) Foreword.

103 ICAO, *First Unassigned High Seas Airspace Special Coordination Meeting (SCM/1) Working Paper SCM/1-WP/02: ICAO Provisions, Policy and Guidance Material on the Delegation of Airspace over the High Seas* (2019) 1. Nevertheless, there are operational conditions that bind air navigation. *See* Zhang W, *Protection of Aviation Security Through the Establishment of Prohibited Airspace* (PhD thesis, Leiden University 2023) ch 4 s 2.

104 *United Nations Convention on the Law of the Sea* (10 December 1982) [UNCLOS], art 89.

105 Even though the principle of the freedom of the seas was codified only in 1958, this principle has been present since the 1600s.

106 *See* Section 3.3.1.3 of this research.

formity and flexibility given in the second sentence of Article 12, then, do not apply to the obligation under this specific sentence.[107]

Analysis of the first and second sentences of Article 12 of the Chicago Convention (1944) demonstrates that the "rules in force' referred to in the third sentence are those which are laid down in Annexes 1, 2, 6, 11, and 19.[108] In summary, States are not allowed to notify ICAO of any deviations in their national legislation from SARPs with respect to flight and manoeuvre rules for the airspace above the high seas.[109]

On the high seas, the absence of sovereignty results in complete uniformity governed by ICAO rules. This result aligns with the goal of standardisation, which further reinforces the safety paradigm.

Since States have no power with respect to rule-making in the airspace above the high seas, which is left to ICAO, the question of enforcement of these rules arises. While an aircraft is flying above the high seas, the State of Registry assumes the role of the supervising State.[110] Therefore, the general option applies to the high seas: the State of Registry may choose to implement applicable SARPs in ICAO Annexes into their domestic legal system, or States may automatically grant these SARPs the same status as domestic law without a further need for implementation.

3.3.1.6 Fourth sentence on prosecution

- *Structure of the fourth sentence – the prosecution of individuals violating applicable regulations*

Under the fourth sentence of Article 12 of the Chicago Convention (1944), each Contracting State "undertakes to insure the prosecution" of any individuals who violate the applicable regulations. This is a pivotal sentence, emphasising the commitment of Contracting States to enforce regulations with respect to the flight and manoeuvre of aircraft. By undertaking this obligation, States actively contribute to maintaining safety, order, and compliance in international civil aviation.

The following subsections present the significance and implications of this sentence, shedding light on the crucial role played by Contracting States in prosecuting those who contravene the prescribed flight and manoeuvre rules.

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107 *See* Section 3.3.1.4 of this research.

108 *See* Section 3.3.1.3 of this research.

109 The drafters of the UNCLOS present that ICAO Annexes 6, 11, and 12 also apply on high seas. *See* UN, 'Official Records Volume I: Preparatory Document (A/CONF.13/37)' (United Nations Publication 1958) 68.

110 *See* Subsection "Scope of the application" in Section 3.3.1.3.

- *Definition of prosecution*

I regard the term 'prosecution' as referring to a formal criminal justice process, excluding civil or administrative action. The grammatical and supplementary interpretation confirms this.

Grammatically, (legal) dictionaries define prosecution as follows:

- *"The act or process of prosecuting; specifically: the institution and continuance of a criminal suit involving the process of pursuing formal charges against an offender to final judgment";*[111]
- *"The process of conducting legal proceedings against someone in respect of a criminal charge."*[112]

It follows that prosecution is commonly related to only criminal acts and criminal proceedings.

The pre-Chicago regime is a supplementary tool for interpretation as the outcome of the discussion thereof was thatcriminal law enforcement was likely intended in the regime, although the meaning of the term 'prosecution' was not a point of discussion during the Chicago Conference preparing the Chicago Convention (1944).[113]

In other sources, ICAO refers to the term 'criminal proceedings' instead of prosecution.[114] This term appears in the discussion regarding the principle of protection referred to in ICAO Annex 19 and the Safety Management Manual (SMM).[115] In the SMM, ICAO explains what it perceives as a "proceeding", namely:

> *"The term "proceeding" may be more comprehensive and broader in scope than the term "action". It may also refer rather more narrowly to the processes of a particular body to review or enforce "actions" that have been taken by another authority (or an agency within the same authority). In a general sense, the terms "proceeding" and "action" may be understood to encompass all the steps taken or measures adopted in order to initiate, give effect to, or review a decision of an authority affecting a person's rights, privileges, legitimate interests or reasonable expectations (as these may be identified under applicable laws). In view of different legal systems, the nature and scope of particular actions or proceedings may vary. "*

111 Merriam-Webster, 'Merriam-Webster Dictionary – Prosecution' (2024) <https://www.merriam-webster.com/dictionary/prosecution> accessed 13 October 2024

112 Oxford University Press, 'Oxford English Dictionary – Prosecution' (2023) <https://www.oed.com/search/dictionary/?scope=Entries&q=prosecution> accessed 13 October 2024.

113 The statement of the Canadian representatives does not contain any discussion on the prosecution nor the draft submitted to the Chicago Conference.

114 ICAO, *Annex 19 Safety Management* (2nd edn, 2016) App 3-2.

115 ICAO, *Safety Management Manual (2018)* (Doc 9859, 4th edn, 2018). For the principle of protection, *see* Sections 2.4.2.3. for a brief description, and Section 3.4.2.2. for an in-depth analysis, both in this research.

With this, the SMM further provides an example of criminal and civil proceedings as thefollowing:

> *"Criminal and civil actions or proceedings usually involve judicial authorities. These proceedings may include the commencement of the action, the appearance of the defendant, all ancillary or provisional steps, the pleadings, the trial discovery processes and other formal inquiries. As a consequence of such actions or proceedings, a person may be subject to … in some cases incarceration."*[116]

The reference to 'incarceration' reinforces the notion of 'true' criminal action in that this sanction can only be imposed through a 'true' criminal process.

- *The term "regulations applicable"*

It is also essential to determine the meaning of the term "the regulations applicable" in the fourth sentence of Article 12. Considering the analysis in the above sections, I identify these regulations as the national flight and manoeuvre rules as implemented and applicable over the airspace of the State of Registry and State overflown, and the flight and manoeuvre rules of the State of Registry as the "regulations applicable" on the high seas. As stated above, these categories of regulations are based on and must conform to ICAO Annexes 1, 2, 6, 11, and 19.

- *"All persons" in the context of the fourth sentence*

As follows from the nature of flight and manoeuvre, it may seem logical that only pilots can be subject to prosecution. The duty of compliance must indeed generally lie with the pilots as an aircraft does not operate itself.[117] However, in reality, and legally, the duty cannot only apply to pilots.

This fourth sentence of Article 12 refers to "all persons", which may mean any person governed by these rules. Anyone involved in the operation would mean not only pilots but also air traffic controllers. The identification of "all persons" who may be subjected to prosecution under Article 12 requires a deeper search into ICAO Annexes, as to which see Section 3.4 of this Chapter.

- *Violation*

The other condition for prosecution pertains to a *violation.* Only if there is a violation is a Contracting State responsible for ensuring prosecution. Therefore, I explore the term "violation" from a grammatical and aviation safety point of view.

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116 ICAO, *Safety Management Manual* (Doc 9859, 4th edn, 2018) 7-9.

117 In this case, of course, automation and autonomy in operation are disregarded for convenience reasons, for this chapter focuses solely on pilots at this stage.

Violation refers to any action of breaking a law or action against a law.[118] 'Violation' is also a synonym of non-compliance.[119] While this may seem straightforward, understanding the notion of a violation in the context of civil aviation is more complex, also in the absence of a solid source containing discussion by the drafters of the meaning to be attributed to the term under Article 12.

The technical instruments, including but not limited to SARPs, PANS, and Manuals of ICAO, provide more focused aviation and technical definitions of violations. As discussed above (in Chapter 1), in the evolution of the safety paradigm (as a response to accidents involving human factors, which could have been prevented by the organisational control of service providers),[120] ICAO started introducing the concept of safety management.[121] According to ICAO, within safety management, a violation means a "deliberate act of wilful misconduct or omission resulting in a deviation from established regulations, procedures, norms or practices,"[122] leading to an immediate adverse impact, such as an accident.[123] ICAO further added that "violation" should be distinguished from an "error" that is "an action or inaction by an operational person that leads to deviation from organizational or the operational person's intentions or expectations."[124] Also, a simple failure with respect to compliance is not always a violation, as "most violations involve a conscious decision to depart from standard operating procedures."[125]

- *Ensuring prosecution*

The obligation set forth in the fourth sentence of Article 12 of the Chicago Convention (1944) is designed to ensure prosecution. Similar obligations concerning prosecution appear in the Tokyo Convention (1963) and the Montreal Sabotage Convention (1971).[126] These mainly deal with interna-

118 *See* Merriam-webster, 'Violate' <https://www.merriam-webster.com/dictionary/violating> accessed 13 October 2024, Cambridge Dictionary, 'Violate' <https://dictionary.cambridge.org/dictionary/english/violate> accessed 13 October 2024. In the Oxford dictionary, the term "violate" means to "break or fail to comply with (a rule or formal agreement)."

119 *See* Section 3.3.1.3 of this research.

120 *See* Section 2.2.5 of this research.

121 This eventually became the topic of ICAO Annex 19.

122 ICAO, *Safety Management Manual (2013)* (Doc 9859-AN/474, 3rd edn, 2013) 2-8.

123 ICAO, *Safety Management Manual (2013)* (Doc 9859-AN/474, 3rd edn, 2013) 2-3.

124 ICAO, *Safety Management Manual (2013)* (Doc 9859-AN/474, 3rd edn, 2013) Definition; 2-8-2-10.

125 Please *see* Reason J, *Human Error* (Cambridge University Press 1990) 195; Reason J, *Managing the Risks of Organizational Accidents* (Ashgate Publishing 1997) 72; Reason J, 'Achieving a Safe Culture: Theory and Practice' (1998) 12(3) Work & Stress 293, 303.

126 *Protocol to Amend the Convention on Offences and Certain Other Acts Committed on Board Aircraft* (Montreal Protocol, 2014) [Montreal Protocol, 2014] and International Civil Aviation Organization (ICAO), *Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation*, 23 September 1971, 974 UNTS 177.

tional air crimes.[127] Commonly, such conventions encompass a provision labelled as an obligation *aut dedere aut judicare*, also referred to as the obligation to extradite or prosecute. This principle is broader than the obligation to ensure prosecution in Article 12.[128]

The first reference to this obligation is contained in Article 7 of the Montreal Sabotage Convention (1971).[129]

In this respect, the ICJ adopted the following approach:

> "*The obligation to submit the case to the competent authorities for the purpose of prosecution (hereinafter the "obligation to prosecute") was formulated in such a way as to leave it to those authorities to decide whether or not to initiate proceedings, thus respecting the independence of States parties' judicial systems. …. It follows that the competent authorities involved remain responsible for deciding on whether to initiate a prosecution, in the light of the evidence before them and the relevant rules of criminal procedure.*"[130]

Mainly, this interpretation would not often be applied to pilots as perpetrators of the unlawful interference, namely sabotage as covered by the Montreal Sabotage Convention (1971), are normally not pilots. Nevertheless, this approach still is useful to explain the understanding within the international civil aviation industry. the obligation to prosecute as such does not necessarily mean that States are obligated to prosecute pilots, because this obligation is restricted to submission to the competent authorities,[131] even in relation to the violations of the flight and manoeuvre rules. However, this does not mean that there is no obligation to engage in another manner with criminal prosecution, as the alternative obligation is to extradite, thereby enabling another State to conduct criminal prosecution.

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127 Some conventions apply to aviation specifically, while others do not.

128 For instance, the actions of pilots may not constitute an international crime.

129 Montreal Sabotage Convention (1971), art 7: "*The Contracting State in the territory of which the alleged offender is found shall, if it does not extradite him, be obliged, without exception whatsoever and whether or not the offence was committed in its territory, to submit the case to its competent authorities for the purpose of prosecution. Those authorities shall take their decision in the same manner as in the case of any ordinary offence of a serious nature under the law of that State.*"

130 *Questions relating to the Obligation to Prosecute or Extradite (Belgium v. Senegal)* (ICJ) 422, 455.

131 Additionally, the International Law Commission interpreted that "prosecution", when tied to the obligation to extradite in the context of *aut dedere au judicare* principle, is a modern replacement of the term "punishment" as an alleged offender may not be guilty. Therefore, it is fairly easy to conclude that ensuring prosecution does not necessarily mean that the prosecuted pilots shall be punished. *See* Commission IL, *The obligation to extradite or prosecute (aut dedere aut judicare) – Final Report of the International Law Commission*, 2014) 2 and Note 425.

In any event, prosecution can only be regulated by domestic law.[132] As such, the ICJ added in the decision above that the obligation to ensure prosecution should be read in conjunction with other pertinent provisions of the relevant multilateral treaties. Notably, it has also induced States to implement domestic law to criminalise specific actions to enable prosecution as "elements of a single conventional mechanism."[133] While Article 12 is formulated in a different manner, it may likewise be understood as implying the duty to establish domestic law regulating criminal liability, prosecution, and punishment of pilots.[134]

3.3.1.7 State practice as to the implementation and application of the obligations of Article 12 of the Chicago Convention (1944)

- *Types of State practice*

The obligations under Article 12 can be divided into the following categories:

- Implementation of flight and manoeuvre rules;
- Notification of differences;
- Reaction to amendments;
- Adoption of enforcement mechanisms.

The following section contains an analysis of State practice concerning the implementation of these obligations.

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132 For example, in the case of *Questions relating to the Obligation to Prosecute or Extradite (Belgium v. Senegal)* (ICJ), Senegal argues that "Belgium cannot dictate precisely how it should fulfil its commitments under the Convention, given that how a State fulfils an international obligation, particularly in a case where the State must take internal measures, is to a very large extent left to the discretion of that State." See, *Questions relating to the Obligation to Prosecute or Extradite (Belgium v. Senegal)* (ICJ) 422, 451 and 455. *See also* Chapter 2 of this research. It is also additionally possible to argue this based on certain international and regional conventions, such as the Tokyo Convention (1963) or the ECHR Article 7. Nevertheless, As pointed out by Boyle, such is valid as long as the matters relevant are governed only by national legislation. *See*, Boyle RP and Pulsifer R, 'The Tokyo Convention on Offenses and Certain Other Acts Committed on Board Aircraft' (1964) 30 Journal of Air Law and Commerce 305, 332.

133 *Questions relating to the Obligation to Prosecute or Extradite (Belgium v. Senegal)* (ICJ) 422, 455.

134 This approach aligns with the interpretation of the State oversight function made by Prof. Huang and Dr Ratajczyk. *See* Subsection on "Obligation on Contracting States in Section 3.3.1.3. In addition, jurisdictional questions are also relevant in international conventions outside the Chicago Convention (1944), concerning legal certainty across the border. *See*, ICAO, *International Conference on Air Law, Tokyo, August-September*, vol I: Minutes (1966), 35: *"The Roman principle 'nulla poena sine lege' was basic to the criminal laws or constitutions of many, if not all, States. In other words, a person might not be prosecuted or punished for an act if, at the time of such act, there was not a law providing that the act vas an offence against penal laws."* Specifically, the question still lies in how to prosecute or punish someone who committed a crime from one jurisdiction when the crime and punishment are not prescribed in another.

- *Implementation of flight and manoeuver rules and notification of differences from time to time*

The first undertaking required under Article 12 of the Chicago Convention (1944) pertains to the uniform implementation of flight and manoeuvre rules as prescribed in relevant ICAO Annexes to the greatest possible extent.[135] As discussed above, while States normally have a certain degree of flexibility to implement SARPs under Articles 37 and 38 of the Chicago Convention (1944), the obligation to implement and apply flight and manoeuvre rules set out in Article 12 of the Chicago Convention (1944) is a strict one. Nevertheless, deviations do exist.

In practice, it is an issue that information on the implementation and application of flight and manoeuvre rules and national deviations therein is not sufficiently shared among ICAO States. In 2009, Prof. Huang identified that States often do not notify ICAO of their differences.[136] This problem still persists. At least 45 per cent of Contracting States of the Chicago Convention (1944) do not have a system to identify and notify differences between SARPs and domestic legislation and practices.[137] Moreover, over 80% of the Contracting States still have issues publishing significant differences in their domestic Aeronautical Information Publication (AIP), at least in the last three trienniums.[138]

Consequently, it is unclear to which extent ICAO States have implemented the flight and manoeuvre rules or if there are any differences between domestic rules and practices, on the one hand, and ICAO flight and manoeuvre rules, on the other. Because of this uncertainty, pilots are likely unaware of the applicable flight and manoeuvrer rules in force, which is also unclear among States. As a corollary, that uncertain situation has an adverse impact on both the safety and legal certainty paradigms.

135 Section 3.3.1.3 of this research.

136 *See* Footnote 182 in Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 71.

137 ICAO, *Report on Universal Safety Oversight Audit Programme – CMA Results (1 January 2019 to 31 December 2021)* (2022) 31.

138 ICAO, *Report on Universal Safety Oversight Audit Programme – CMA Results (1 January 2019 to 31 December 2021)* (2022) 31; ICAO, *Report on Universal Safety Oversight Audit Programme – CMA Results (1 January 2016 to 31 December 2018)* (2019) 28; ICAO, *Report on Universal Safety Oversight Audit Programme – CMA Results (1 January 2013 to 31 December 2015)* (ICAO 2016) 25.

- *State responsibility for oversight*

In enhancing the level of effective implementation of SARPs, ensuring compliance is one of the preventive mechanisms to promote safety.[139] In other words, non-compliance with SARPs and other technical instruments of ICAO was believed to affect aviation safety.[140] The then President of the Council of ICAO stated that:

> "*Civil aviation is extremely safe. But when accidents occur, it is often because the rules and procedures outlined in the SARPs and related guidance material developed by ICAO are not adhered to properly*."[141]

It follows from this statement that compliance with SARPs is "the key to aviation safety."[142] These SARPs also include norms regulating the actions of pilots.

Under the USOAP,[143] States' oversight capabilities mandatorily become subject to ICAO's evaluation, focusing on eight areas.[144] The following elements reflect aspects of flight and manoeuvre rules compliance, which ICAO monitors in its audits, the USOAP.

- Legislation and regulation, as implemented under the provisions of the Chicago Convention (1944) and Annex 2;
- Personal licensing, assessing Annexes 1 and 19;
- Aircraft operations assessing Annexes 2, 6, 18, 19 and PANS-OPS;
- Air navigation services assessing Annexes 2, 3, 4, 5, 10, 11, 12, 15, 19 and PANS-ATM.

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139 *See* the following of this research: Section 1.7.1. on the evolution of safety; Section 3.3.1.3. on compliance; Section 2.2 on a new approach towards safety further explains the interrelation between compliance and safety management. *See also* ICAO, *A32-11 Establishment of an ICAO universal safety oversight audit programme* (1998); ICAO, *"Implementing SARPs – The key to Aviation Safety and Efficiency" The Theme for the 2000 Edition of International Civil Aviation Day* (2000); ICAO, *Assembly Resolution A35-6: Transition to a Comprehensive systems Approach for Audits in the ICAO Universal Safety Oversight Audit Programme (USOAP)* (2004); Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 43; Section 3.3.1.3 of this research.

140 Clearly, the pre-Chicago regime recognises it. See Section 3.2 of this study, which focuses on punishment and non-compliance.

141 ICAO, *Implementing SARPs – The Key to Aviation Safety and Efficiency" The Theme for the 2000 Edition of International Civil Aviation Day* (2000)

142 ICAO, *Implementing SARPs – The Key to Aviation Safety and Efficiency" The Theme for the 2000 Edition of International Civil Aviation Day* (2000)

143 *See* Section 1.8 on the role of international organisations.

144 The subjects of the State oversight function are primary aviation regulation, specific operating regulations, State civil aviation system and safety oversight functions, technical personnel qualification and training, technical guidance, tools and the provision of safety-critical information, licensing, certification, authorisation and approval obligations, surveillance obligations and the resolution of safety concerns.

In practice, the "respective capabilities to oversee the implementation" of flight and manoeuvre rules referred to in Article 12 also become subject to the ICAO's assessment, which is now transformed into the 'USOAP CMA'.[145]

In respect of the implementation of Standards laid down in ICAO Annex 2 (Rules of the Air) and the filing of differences to ICAO, the USOAP CMA presents eight questions regarding the implementation of Article 12. These questions are formulated as follows:

- *Does the primary aviation legislation provide for the enforcement of applicable legislation*?[146]
- *Has the civil aviation authority established an enforcement policy and associated procedures*?[147]
- *Has the State promulgated personnel licensing regulations to enable it to transpose the provisions of Annex 1*?[148]
- *Has the State promulgated aircraft operations regulations which transpose the provisions of Annex 6 Parts I, II, and III*?[149]
- *Does the State have provisions in its legislation or regulations making it mandatory for any civil aircraft under its registry or operated by its air operators to comply with interception orders from other States*?[150]
- *Has the State promulgated airworthiness regulations to transpose the airworthiness-related provisions of Annexes 6, 7, 8, 16, and 19*?[151]
- *Has the State promulgated primary aviation legislation in compliance, without exception, with the applicable provisions of Annex 2 on high seas airspace*?[152]
- *Has the State promulgated ANS specific operating regulations to transpose the provisions of the ANS-related Annexes into its own legislation*?[153]

From an ICAO perspective, these questions are relevant to the implementation of Article 12 of the Chicago Convention (1944).

In the analysis of Article 12 of the Chicago Convention (1944) in Section 3.3.1 of this research, it was argued that the implementation of Article 12 depends on a wider range of flight and manoeuvre rules than merely the Standards of ICAO Annex 2. As the above self-check questions prove, the "rules and regulations" referred to in the first sentence of Article 12 are

145 *See* Section 1.8.1 of this research. Since 2010, ICAO has implemented the continuous monitoring system approach towards USOAP, which is now called the 'USOAP CMA'. The USOAP CMA requires States to continuously check their competencies using protocol questions prepared by ICAO. *See* ICAO, *Assembly Resolution A37-5: The Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach* (2010).

146 Protocol Question No. 1.051

147 Protocol Question No. 1.055

148 Protocol Question No. 3.001

149 Protocol Question No. 4.001

150 Protocol Question No. 4.015

151 Protocol Question No. 5.001

152 Protocol Question No. 7.001

153 Protocol Question No. 7.009

understood to be SARPs laid down principally in Annex 2, but also Annexes 1, 6, 7, 8, 16, and 19.[154]

This extended scope of the flight and manoeuvre rules identified in these protocol questions clarifies the analysis of Article 12. Thus, the above questions also pertain to and define pilot licensing,[155] pilots' tasks for the operation of the aircraft,[156] and the role of pilots and actors in the safety management of international civil aviation.[157] These aspects are neither explicitly mentioned in Article 12 nor ICAO Annex 2 but present the logical understanding of ICAO concerning the scope of Article 12.

Section 3.4 of Chapter 3 elaborates further on the analysis of these Annexes.

3.3.2 Analysis of Article 26 of the Chicago Convention (1944)

3.3.2.1 Structure of the analysis of Article 26 of the Chicago Convention (1944)

Article 26 of the Chicago Convention (1944) is dedicated to the investigation of accidents. This provision is elaborated on in ICAO Annex 13 on accident and incident investigation. The provision reads as follows:

> "*In the event of an accident to an aircraft of a contracting State occurring in the territory of another contracting State, and involving death or serious injury, or indicating serious technical defect in the aircraft or air navigation facilities, the State in which the accident occurs will institute an inquiry into the circumstances of the accident, in accordance, so far as its laws permit, with the procedure which may be recommended by the International Civil Aviation Organization. The State in which the aircraft is registered shall be given the opportunity to appoint observers to be present at the inquiry and the State holding the inquiry shall communicate the report and findings in the matter to that State*."

Article 26 of the Chicago Convention (1944) provides that if an accident occurs, Contracting States are responsible for investigating it.[158] Prof. Milde asserts that Article 26 leaves more questions than clarifications. Innovations in international civil aviation moreover add complications to existing questions,[159] which the following subsections research.[160] If pilots' violations of flight and manoeuvrer rules cause an accident, Article 26 becomes applicable.

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154 Protocol Question No. 5.001

155 ICAO, *Annex 1 Personnel Licensing* (13th edn, 2020).

156 ICAO, *Annex 6 Operation of Aircraft*, vol Part I – International Commercial Air Transport – Aeroplanes (12th edn, 2022).

157 ICAO, *Annex 19 Safety Management* (2nd edn, 2016).

158 This means, in principle, technical investigations.

159 Milde M, 'Aircraft Accident Investigation in International Law'(1984) 9(1) Air and Space Law 61, 62.

160 Fiorita DM, 'The International Framework of Aircraft Accident Investigation – Contemporary Issues' (1994) 19 Annals of Air and Space Law 161, 161. An example of such is Article 83*bis* of the Chicago Convention (1944).

The following sections discuss the elements of Article 26, including its connection with ICAO Annex 13, as well as its interaction with Article 12 of the Chicago Convention (1944).

3.3.2.2 The first sentence of Article 26 of the Chicago Convention (1944)

The first sentence of Article 26 of the Chicago Convention (1944) establishes the obligation of States to institute an inquiry in case of an accident.[161] The first sentence of Article 26 deals specifically with the obligation to institute an inquiry for the State of Occurrence. This obligation is imposed under two cumulative conditions: *firstly*, when an accident has occurred in the territory of a Contracting State, and *secondly*, when the accident involves death or serious injury or indicates a technical defect in the aircraft or air navigation facilities.

The usage of the terms "accident investigation" and "inquiry" in Article 26 prompts a significant discussion. Article 26 consistently employs the term "inquiry" in its text, while its title has always been "accident investigation". This distinction dates to early discussions in 1947, while "inquiry" was also reflected in the title of ICAO Annex 13 for a certain period. In 1947, the relevant working group on aircraft accident investigation attempted to define the term "accident inquiry" as "all proceedings that may be required in order to determine the cause of an accident" and proposed to delete the term "investigation" from Annex 13. After reviewing it, the Air Navigation Commission objected to this proposal and made a clear distinction. According to the Air Navigation Commission, "inquiry" is an "all embracing term covering the gathering together of all the factual and relevant details of the accident, its presentation to the appropriate authority and any legal procedures that might follow arising out of this examination, up to the submission of the final report." In comparison, the investigation would be only part of the defined "inquiry," as investigation would be strictly limited to technical findings.[162]

Later, in 1966, more current definitions were adopted. *On the one hand*, the term "inquiry" was defined as the "process leading to the determination of the cause of an aircraft accident or incident, including the completion of the relevant report." [163] *On the other hand*, "investigation" was defined

161 First sentence of Article 26 of the Chicago Convention (1944): *"In the event of an accident to an aircraft of a contracting State occurring in the territory of another contracting State, and involving death or serious injury, or indicating serious technical defect in the aircraft or air navigation facilities, the State in which the accident occurs will institute an inquiry into the circumstances of the accident, in accordance, so far as its laws permit, with the procedure which may be recommended by the International Civil Aviation Organization."*

162 *See* Van Wijk AA, *Aircraft Accident Inquiry in the Netherlands – A Comparative Study* (PhD thesis, University of Amsterdam 1974) 268-269, and notes therein.

163 ICAO, *Annex 13 Aircraft Accident Inquiry* (2nd edn, 1966) ch 1.

separately as the organised gathering of "factual information related to an aircraft accident."[164]

Since 1976, the terminology used in ICAO Annex 13 has changed. The definition of "inquiry" was eliminated, and "investigation" was adopted as the new title of ICAO Annex 13. Captain Kane argues that this change reflects a growing trend to differentiate between the technical and judicial investigation, with the latter being referred to as an "inquiry."[165] The following section further explores this change of language,[166] as it aligns with ICAO's evolving perspective on potential judicial investigations.

However, despite Captain Kane's assertion, Article 26 of the Chicago Convention (1944) continues to refer to the obligation to institute *an inquiry* rather than *an investigation*. Although the definition of "inquiry" may no longer exist in ICAO Annex 13,[167] it seems to me that the text of Article 26 continues to imply a connection to potential judicial investigations. The following paragraphs delve deeper into this matter and offer further points for consideration.

The inquiry mentioned in Article 26 should be carried out in accordance with the procedures drawn up by ICAO, "as far as" domestic law permits.[168] However, Dr Van Wijk identifies a general trend in the 1970s wherein Contracting States ignored the influence of ICAO over its national accident investigations and conducted investigations only according to domestic law.[169]

Section 3.3.2.5. presents the current State practice in this respect.

3.3.2.3 The second sentence of Article 26

The second sentence of Article 26 imposes an obligation on the State of Occurrence to grant the State of Registry the opportunity to designate

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164 ICAO, *Annex 13 Aircraft Accident Inquiry* (2nd edn, 1966) ch 1.

165 Kane R, 'Accident Investigation and the Public Interest: A Pilot's View' 38(3) (1989) Zeitschrift fur Luft- und Weltraumrecht 3, 5.

166 *See* Section 3.4.2.1.

167 From the issuance of the 4th edition of the ICAO Annex 13, the definition of 'inquiry' does not exist. *See*, ICAO, *Annex 13 Aircraft Accident Investigation* (4th edn, 1976).

168 Chicago Convention (1944), art 26. "[I]ts law" in the text of Article 26 refers to the domestic law of each Contracting State.

169 Van Wijk AA, *Aircraft Accident Inquiry in the Netherlands – A Comparative Study* (PhD thesis, University of Amsterdam 1974) 275. *See also* Captain Kane R, 'Accident Investigation and the Public Interest: A Pilot's View' (1989) 38(3) Zeitschrift fur Luft- und Weltraumrecht 3, 5. Captain Kane defines this trend as the "supremacy of domestic laws" over ICAO SARPs.

observers for the investigation and to share the report and findings.[170] Consequently, when the State of Registry fulfils its obligation by prosecuting pilots for violations of flight and manoeuvre rules,[171] the State of Occurrence should also allow the State of Registry to appoint observers and facilitate the communication of the investigation report and findings.[172]

The State of Occurrence is principally tasked with the prosecution of the persons who were involved in the accident or incident. However, the State of Occurrence may engage in an agreement with another State involved with the accident, for instance, the State of registry of the aircraft or the State whose nationals have been significantly affected by the accident.

The purpose of the second sentence is found in the drafting history of the Chicago Convention (1944).[173] The US government's proposed draft provision elucidates that the aim of cooperation and facilitating the representation of the State of Registry or the Operator is to obtain comprehensive information regarding the cause of the accident.[174] Despite the differences in the current wording of Article 26 compared to the draft text, the underlying purpose remains unchanged.

A concrete example illustrating this point is the Asiana Airlines accident in San Francisco, in the US, on July 6, 2013.[175] In this case, the aircraft involved was registered in Korea, making it the State of Registry, while the US was the State of Occurrence, primarily responsible for the technical investigations. In the event of any violations amounting to criminal acts, Korea, as

170 Chicago Convention (1944), art 26: "…The State in which the aircraft is registered shall be given the opportunity to appoint observers to be present at the inquiry and the State holding the inquiry shall communicate the report and findings in the matter to that State." Prof. Milde refers to this as a central element of Article 26. *See* Milde M, 'Aircraft Accident Investigation in International Law' (1984) 9(1) Air and Space Law 61, 62.

171 *See* Section 3.3.1.6 of this research. In this case, investigations may not only be technical or judicial but also criminal, civil, or administrative in nature. However, the main concern is how all conditions would revolve when criminal proceedings are opted for.

172 There have been several Resolutions issued by the ICAO Assembly in terms of Article 26 to extend the States and parties to become observers and receive communication from the State of Registry only to include the State of manufacturers. However, as the analysis of Article 12 does not impose an obligation to prosecute on the State of Manufacturers, this study does not include the specific resolution in the analysis of Article 26. Please *see* ICAO, *Assembly Resolution A4-14: Examination of Article 26: Privileges and Obligations of Contracting States other than the State of Registry or the State of Occurrence with respect to Accident Investigation* (1950) and ICAO, *Assembly Resolution A14-27: Statement of Continuing Assembly Policies Related Specifically to Air Navigation As They Existed at the Commencement of the Fourteenth Session of the Assembly* (1962).

173 *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 1385.

174 *See* draft article 15 prepared by the US government in *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 559.

175 For the details of this case, please *see* Chapter 4 of this study.

the State of Registry, was responsible for ensuring the prosecution of the pilots involved. The US, as the State of Occurrence, was obliged to facilitate the participation of Korea by allowing their representatives to appoint an observer and share relevant details of the investigation. Consequently, the accident investigation board and the Ministry of Transport of Korea participated in the investigation as observers in the technical investigation. The accident investigation board and the Ministry of Transport of Korea provided information on the results of State oversight of the relevant airlines, which facilitated better fact-finding in the US. This example demonstrates the practical implementation of the obligations outlined in Article 26 of the Chicago Convention (1944).[176] However, the pilots were prosecuted neither in Korea nor in the US.

The obligation for technical investigation may also be transferred from one State to another, which has implications for prosecution. An example of such a transfer is the prosecution of offenders in the downing of MH17. While the State of Registry was Malaysia,[177] a joint investigative team was formed following Ukraine's request, as the State of Occurrence, for support from ICAO.[178] The Netherlands, as one of the "States who have lost nationals on MH17,"[179] joined this investigation. Later, in 2017, the formed joint investigation team decided to concentrate on "the prosecution and adjudication of crimes" concerning flight MH17 in the Netherlands instead of in Malaysia or Ukraine. Any investigations which may result in the prosecution of pilots may also be transferred in this manner.

3.3.2.4 Article 26 in conjunction with ICAO Annex 13

Article 26 must be read, besides in connection with the obligation to prosecute in Article 12 (see in this regard, further below at Section 3.4.2.), in conjunction with ICAO Annex 13. This Annex indeed confirms that Contracting States other than States of Registry and Occurrence may play a role in investigations.[180] If pilots violate flight and manoeuvre rules, and an accident or incident results from such a violation, ICAO Annex 13 governs

176 *See*, NTSB, *Descent Below Visual Glidepath and Impact With Seawall Asiana Airlines Flight 214 (NTSB/AAR-14/01, PB2014-105984)* (NTSB 2014) Appendixes, 148: "In accordance with the provisions of Annex 13 to the Convention on International Civil Aviation, the KARAIB participated in the investigation as the representative of the State of the Operator. Asiana Airlines and the KOCA participated as technical advisors to the KARAIB." The KARAIB refers to the "Republic of Korea Aviation and Railway Accident Investigation Board" and the KOKA refers to the "Republic of Korea Office of Civil Aviation." However, the pilots were not prosecuted in Korea or the US.

177 Its registry is 9M-MRD.

178 United Nations Security Council Resolution 2166 (2014).

179 United Nations Security Council, Resolution 2166 (2014)

180 ICAO, *Assembly Resolution A4-14: Examination of Article 26: Privileges and Obligations of Contracting States other than the State of Registry or the State of Occurrence with respect to Accident Investigation* (1950)

investigations if and in so far as domestic law has implemented the provisions of this Annex.

3.3.2.5 State Practice in relation to accident and incident investigation

Few State practices derived from the USOAP CMA regard Article 26 of the Chicago Convention (1944).[181] The self-assessment tool with protocol questions, which States may normally utilise to check their oversight capability,[182] does not include questions with respect to the implementation of this provision. The implementation of SARPs contained in ICAO Annex 13, however, raises many questions, which Chapter 4 of this research explores further.

As for the implementation of ICAO Annex 13 more generally, the USOAP CMA record of 13 October 2024 reflects that the average rate of effective implementation thereof in domestic legal systems remains at 54%.[183] The level of implementation is as low as 0%.[184] However, it is also as high as 100%.[185] There is, thus, a long way to go to achieve uniformity in accident investigations. As aviation is a cross-border, global undertaking, uniformity of rules not only enhances safety but also legal certainty for those who are involved with flying, in particular pilots. Low implementation, as such, gives rise to significant concerns in this regard.

3.3.3 Concluding remarks of Section 3.3

Section 3.3 of this study examined Articles 12 and 26 of the Chicago Convention (1944) separately. It is important, moreover, to establish their interrelationship. Article 12 not only strengthens the legal force of flight and manoeuvre rules found in various Annexes but also plays an essential role in governing the potential prosecution of individuals involved in accidents and incidents, notably pilots. Legal certainty for those involved with aviation as a cross-border undertaking requires foreseeability and accessibility of these regulations.

As demonstrated above, diverse features of the air law framework, however, mean that legal certainty therein is necessarily reduced. This holds

181 One of the State practices to refer to is whether the State of Registry is invited to join an investigation as a representative and observer.

182 *See,* Section 3.3.1.7 of this research.

183 ICAO, 'Safety Audit Results: USOAP interactive viewer' <https://www.icao.int/safety/pages/usoap-results.aspx> accessed 13 October 2024. This rate for accident investigation can be compared to other areas of implementation. Among the eight areas of USOAP, accident investigation has the lowest implementation level. Airworthiness holds the highest global average of the implementation level.

184 That is the case in Afghanistan.

185 Singapore implemented 100% of SARPs on ICAO Annex 13.

in the first place for the content of rules themselves, including issues with respect to their evolving content and binding force, the competence of States to deviate and the extent of their transposition – in good alignment with ICAO rules – into domestic law. In that last respect, the diffuse nature of the concept of 'violations' – which, as discussed above, has a broad connotation in air law, not to be equated automatically with a criminal offence – brings with it that it may not be clear if and how 'air law violations' have been transposed in national law also as *criminal offences*. Without such transposition, criminal prosecution is not possible. Differences between jurisdictions in this regard exacerbate this issue.

In the second place, the specific reasoning and approach underlying the obligation of States to initiate prosecution in the field of aviation remains somewhat unclear because of the language of Article 12 and agreements among States outside the air law regime. Additional exploration of relevant SARPs concerning flight and manoeuvre rules in greater detail and the manner in which they may or have been deployed in criminal prosecutions is necessary in this regard. This is featured below in Section 3.4.

Article 26 connects to ICAO Annex 13 on accident and incident investigation. Article 26 imposes an obligation to conduct an inquiry according to procedures contained in this Annex. Investigations, in this sense, need not take the form of criminal prosecution. Importantly, however, they can result in criminal proceedings, as well as those against pilots. As such, this regime governs criminal proceedings, which can lead to criminal liability. Therein lies the connection with Article 26: where Article 12 requires prosecution, Article 26 and Annex 13 influence how that can take place. Given the impact that the Article 12 and Annex 13 regime can have on (the manner of) criminal prosecution, it is also necessary to thoroughly analyse the pertinent SARPs formulated in ICAO Annex 13.

In addition to the analysis of Articles 12 and 26 of the Chicago Convention (1944), the previous sections expressed concerns with respect to the comprehensiveness of these provisions in addressing the changing dynamics encompassing mainly two paradigms: safety and legal certainty. The Chicago Convention (1944) seems to support the prosecution of persons who violate safety norms.[186] As emphasised above, however, it can be difficult to isolate which types of 'violations' can actually be subject to criminal prosecution. Ideally, greater clarity with respect to all issues identified above is to be found in the ICAO Annexes. As such, the pertinent Annexes are analysed in greater detail below. In doing so, an important preliminary consideration must be to emphasise that the content thereof is evolutive. While the Chicago Convention (1944) remains unchanged, ICAO Annexes do not.

186 *See* Section 3.3.1 of this research.

This evolution comports with the understanding of safety transformation and the impact on legal certainty.[187]

3.4 Standards and Recommended Practices (SARPs)

3.4.1 Flight and manoeuvre rules

3.4.1.1 Flight and manoeuvre rules for pilots

Section 3.3 concluded that pilots may be prosecuted if they violate flight and manoeuvre rules as stipulated in Article 12 of the Chicago Convention (1944). ICAO Annexes 1, 2, 6, and 11 contain the basic rules for the operation of the navigation of the aircraft.[188]

The following sections examine the basic rules of said Annexes.

3.4.1.2 ICAO Annex 1

- *Personnel licensing*

First adopted in 1948,[189] ICAO Annex 1 on Personnel Licensing is one of the first Annexes produced as a result of the Chicago Conference held in 1944.[190] Annex 1 details the requirements for applicants to become licensed pilots; it draws up global standards for pilots' competence in aircraft operation.[191]

Pursuant to ICAO Annex 1, the licensing authority of a Contracting State is responsible for assessing the qualifications of pilot candidates to become licensed. They may do so when candidates prove their knowledge and competence to comply with flight and manoeuvre rules.[192]

The SARPs of Annex 1 must also be implemented in the legislation of ICAO States, but States do have some discretionary room in implementation. If and to what extent ICAO States have such discretionary power depends on the language employed in the relevant SARPs and whether such States have

187 *See* Section 1.7 of this research.
188 Section 3.3.1.3 of this research.
189 ICAO, *Annex 1 Personnel Licensing* (1st edn, 1948).
190 *See also*, Chicago Convention (1944), art 37(d).
191 Under Article 32 of the Chicago Convention (1944), the State of Registry shall issue or render the licenses of pilots. Notably, however, the text of Article 32 refers to "certificate of competency and licenses" rather than simply "license." According to Prof. Huang, in ICAO practice, "license" encompasses both "certificate of competency and licenses". *See* Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 45 note 92.
192 *See* ICAO, *Annex 1 Personnel Licensing* (13th edn, 2020) Definition.

notified differences between their national provisions and ICAO SARPs pursuant to Article 38 of the Chicago Convention (1944).[193]

Pilots can indeed violate SARPs contained in ICAO Annex 1 as implemented. For example, providing false information or flying without the proper certification could constitute a general criminal offence or a specific air law violation, even if the infraction does not directly result in an accident or incident. [194] Such actions might be prosecuted as fraud or, in the case of an accident, could be included in the indictment for causing death or injury, whether under general criminal law or specific air law offences. A hypothetical scenario to consider is whether a pilot could be charged for causing harm while knowingly using a fraudulently obtained license. This raises the question of whether pilots are aware that such legal consequences could arise as a result of fraudulent licensing.

The implementation of ICAO Annex 1 into domestic legal systems is crucial, as it establishes a specialised regulatory framework for pilots, imposing high standards of care. The SARPs laid down in Annex 1 define the uniformly required competencies for pilots. They intend to ensure a standardised level of proficiency necessary for the safe operation of aircraft when applicants become licensed-pilots.[195] This aspect is further examined through the survey presented in Chapter 5.

3.4.1.3 ICAO Annex 2

- *Rules of the Air*

ICAO Annex 2 contains traffic rules in the air. My earlier analysis concludes that the scope of "rules relating to the flight and maneuver of aircraft," as referred to in Article 12 of the Chicago Convention (1944), extends beyond the Standards in ICAO Annex 2 alone. This scope includes aspects addressed in ICAO Annexes 6 and 11, which are discussed in the following sections.[196]

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193 As discussed in sections 1.5.2.4 till 1.5.2.7 of Chapter 1.

194 See, *U.S. v. McEnry*, 659 F.3d 893, 11 Cal. Daily Op. Serv. 12802, 2011 Daily Journal D.A.R. 15224 (9th Cir. 2011). Michael McEnry was convicted of flying without a valid pilot's certificate. He appealed his sentence, arguing that the wrong sentencing guideline was applied. The court had sentenced him based on reckless endangerment of an aircraft, but McEnry argued for a different guideline related to fraud. The Ninth Circuit vacated his sentence, finding procedural errors, and remanded the case for resentencing under a more appropriate guideline.

195 *See*, Section 1.1.2 of this research. *See also*, *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 704: *"The minimum standards of competence of certain classes of flight personnel, for example, certainly ought to be standardized in view of possible conflict between international operations and flying of a purely internal nature."*

196 Note under Standard 2.1.1 in ICAO, *Annex 2 Rules of the Air* (10th edn, 2005), 2-1.

ICAO Annex 2 also encompasses rules for the operation of aircraft in international airspace.[197] The SARPs of Annex 2 apply without discrimination as to the nationality of the aircraft.[198]

- *Territorial application of the Rules of the Air*

Title 2.1 of ICAO Annex 2 reaffirms the wording of Article 12 of the Chicago Convention (1944).[199] Domestically implemented Rules of the Air may vary per State, especially in light of Standard 2.1.1. This Standard confirms that an aircraft must be operated in accordance with the Rules of the Air of the State of Registry of the aircraft, as long as they do not conflict with the air navigation rules of the State being overflown.

Standard 2.1.1 recognises the potential conflict of rules and resolves issues in that regard. In case of inconsistency, the air navigation rules of the air of that State prevail. Therefore, the proper interpretation of Standard 2.1.1 would be that pilots operate the aircraft according to the rules of the air where the aircraft is operated. However, the question may be if this resolution is sufficient from the perspective of the strict legal certainty requirements under criminal law. While safety requires a uniform and strict implementation of this Standard, legal certainty is affected by the fact that States may implement SARPs differently or not implement them, as explained above.

- *Compliance with the Rules of the Air in Standard 2.2*

ICAO Annex 2 details technical provisions about governing actions and limitations during the course of a flight, reflected in the visual and instrument flight rules. Standard 2.2 of ICAO Annex 2 applies to aircraft in flight or within the movement area of an aerodrome.[200]

Grammatically, the general, visual, and instrument flight rules do not explicitly apply to pilots but rather apply to the "operation of aircraft."[201] However, given the nature of pilots' responsibilities and the inherent connection between their actions and the operation of the aircraft, it is reasonable to interpret these rules as directly and exclusively applicable to pilots.

197 *See* Section 3.3.1.3 of this research.

198 *See* Section 3.3.1.3 of this research, which refers to Article 11 of the Chicago Convention (1944).

199 Territorial application of the rules of the air

200 "The operation of an aircraft either in flight or on the movement area of an aerodrome shall be in compliance with the general rules and, in addition, when in flight, either with: 1) the visual flight rules; or 2) the instrument flight rules." An aerodrome means a "defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft." Therefore, the scope of the term 'aerodrome' is broader than the term 'airport', which is designed for fixed-wing aircraft. *See* ICAO, *Annex 2 Rules of the Air* (10th edn, 2005) Definition.

201 For the flight rules, *see* ICAO, *Annex 2 Rules of the Air* (10th edn, 2005) chs 3, 4, and 5.

Pilots, as licensed professionals, undergo training to acquire knowledge and skills of these Rules of the Air as implemented in the domestic legal system.[202]

As outlined in Articles 11 and 12 of the Chicago Convention (1944), and in accordance with the laws of the State of Registry and the State being overflown, these compliance requirements for pilots consist of three types of rules: general flight rules,[203] visual flight rules,[204] and instrument flight rules.[205]

- *General flight rules applicable to all pilots*

The interpretation of Article 12 of the Chicago Convention (1944) is closely intertwined with the general Rules of the Air of ICAO Annex 2.[206] For instance, Standard 3.1.1 stipulates that pilots shall not *negligently or recklessly* operate the aircraft.[207]

This crucial provision raises a fundamental question of interpretation and foreseeability under legal certainty. Negligence and recklessness in criminal law are interpreted differently in the various jurisdictions. As ICAO has no mandate to define criminal standards such as intentional behaviour, wilful misconduct, negligence and reckless conduct as employed in national law, the determination of pilots' conduct must be governed by the understanding of these and other concepts under domestic criminal law. The role

202 *See* Section 3.4.1.2 of this research on ICAO Annex 1 Personal Licensing. *See also* Standards 2.3.1.2, 2.4.1.2, and 2.6.1.2 of ICAO Annex 2, which standardise one of the licensing requirements to be knowledge of Rules of the Air for *all* pilot candidates: "The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of *[relevant licence title]* and appropriate to the category of aircraft intended to be included in the licence… ." [*italics added* JC]

203 Once an aircraft starts moving, the operation of the aircraft should be in accordance with the general rules in Chapter 3 in ICAO, *Annex 2 Rules of the Air* (10th edn, 2005).

204 Visual flight rules are applied when weather conditions allow for adequate visibility. These rules serve as the fundamental regulations in general aviation and are commonly learned by private pilot license holders. They provide guidelines for navigating and operating the aircraft based on external visual references. See ICAO, *Annex 2 Rules of the Air* (10th edn, 2005) ch 4.

205 When visibility is compromised due to weather conditions, all pilots are required to operate under instrument flight rules. This necessitates the use of navigation instruments for guidance. Even when visibility is granted, During instrument flight, pilots rely on onboard instruments and systems to maintain situational awareness and navigate safely. In controlled airspace, pilots also receive instructions and guidance from air traffic controllers to ensure proper separation from other aircraft. *See* ICAO, *Annex 2 Rules of the Air* (10th edn, 2005) ch 5. Most commercial aviation requires the instrument flight rating for pilots as the instrument landing system which increases the precision of landing.

206 ICAO, *Annex 2 Rules of the Air* (10th edn, 2005) ch 3.

207 This was one of the reasons that the conflict of interpretation was raised. *See* Section 4.2.4.2.

played by Just Culture,[208] which also refers to such subjective concepts, may create further uncertainty in this regard, even if it promotes safety and transparency.

- *The unique position of the pilot-in-command (PIC)*[209]

Title 2.3 of ICAO Annex 2 clarifies the somewhat ambiguous language found in Standard 2.2, providing that the "operation of the aircraft" shall comply with the Rules of the Air. [210]

Title 2.3 explicitly assigns the responsibility for compliance to the pilot-in-command (PIC).[211] This explicit assignment is highlighted in three Standards of ICAO Annex 2.[212] Evidently, ICAO Annex 2 expects the pilot-in-command to know the Rules of the Air and other information for the safe operation of the aircraft, which may include domestically implemented flight and manoeuvre rules, as meant under Article 12 of the Chicago Convention (1944). These Standards affirm the final decision-making authority vested in the PIC, specifically with respect to compliance or non-compliance with the localised flight and manoeuvre rules in situations which may warrant such non-compliance. Compliance must be assessed on an *ad hoc* basis considering the ultimate discretionary powers of the PIC.

In the context of prosecution, Standards 2.3.1 and 2.4 also raise significant questions. Standard 2.3.1 emphasises the PIC's duty to ensure compliance

208 Section 1.4.5 of this research.

209 Given that the responsibility for compliance with the Rules of the Air specified in ICAO Annex 2 rests with the PIC, flight crew members, other than pilots, may not be criminally liable for non-compliance with the Rules of the Air of ICAO Annex 2 or domestically implemented rules of the air.

210 ICAO, *Annex 2 Rules of the Air* (10th edn, 2005) Title 2.3 – Responsibility for compliance with the rules of the air.

211 ICAO, *Annex 2 Rules of the Air* (10th edn, 2005) Standard 2.3.1: "The pilot-in-command of an aircraft shall, whether manipulating the controls or not, be responsible for the operation of the aircraft in accordance with the rules of the air, except that the pilot-in-command may depart from these rules in circumstances that render such departure absolutely necessary in the interests of safety."

212 Standard 2.3.1 of *ICAO Annex 2*: "The pilot-in-command of an aircraft shall, whether manipulating the controls or not, be responsible for the operation of the aircraft in accordance with the rules of the air, except that the pilot-in-command may depart from these rules in circumstances that render such departure absolutely necessary in the interests of safety." And Standard 2.3.2 of ICAO Annex 2: "Before beginning a flight, the pilot-in-command of an aircraft shall become familiar with all available information appropriate to the intended operation…" Standard 2.4: "The pilot-in-command of an aircraft shall have final authority as to the disposition of the aircraft while in command. "ICAO, *Annex 2 Rules of the Air* (10th edn, 2005). *See also* Kronlachner A, *The Legal Status of the Pilot-in-Command* (PhD thesis, Johannes Kepler University Linz 2022) 120.

with the applicable Rules of the Air.[213] An exception is made for cases where deviation from these rules is deemed "absolutely necessary" for the safety of the operation of the aircraft, confirming the PIC's discretionary powers in this respect. However, the level of permissible exercise of such powers remains vague, as the PIC's decisions have to be made on an *ad hoc basis*. To gain further clarity on the 'absolute necessity in the interest of safety',it is useful to analyse Article 8 of the Tokyo Convention (1963),[214] emphasising the importance of understanding the meaning and margin under Standard 2.3.1. While the Tokyo Convention (1969) is a 'security' convention, the connotation of the protection of safety remains, as Section 1.7.2 of this research demonstrates.

Research of the historical records of the Tokyo Convention (1963) reveals considerations of subjective and objective criteria in the expression "reasonable grounds" and "reasonable measures" with regard to the authority of the PIC.[215] This decision is determined by "reasonable" belief and whether or not action may be deemed "necessary" to ensure the safety of the aircraft. Legal authorities vary in whether these decisions should be approached from a subjective or objective perspective.[216] As approaches differ depending on the jurisdiction, the effectiveness of these standards in practice for pilots can be problematic. The same variability can be at issue in other Standards.

213 ICAO, *Annex 2 Rules of the Air* (10th edn, 2005), Standard 2.3.1 of *ICAO Annex 2*: "The pilot-in-command of an aircraft shall, whether manipulating the controls or not, be responsible for the operation of the aircraft in accordance with the rules of the air, except that the pilot-in-command may depart from these rules in circumstances that render such departure absolutely necessary in the interests of safety."; Standard 2.3.2: "Before beginning a flight, the pilot-in-command of an aircraft shall become familiar with all available information appropriate to the intended operation…"; Standard 2.4: "The pilot-in-command of an aircraft shall have final authority as to the disposition of the aircraft while in command. "*See also* Kronlachner A, *The Legal Status of the Pilot-in-Command* (PhD thesis, Johannes Kepler University Linz 2022) 120.

214 Tokyo Convention (1969), art 6(1)(a): "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 offence or act contemplated in Article 1, sentence 1, 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;…"[italics added JC]

215 *International Conference on Air Law, Tokyo, August-September*, vol I: Minutes (1966) 153.

216 *International Conference on Air Law, Tokyo, August-September*, vol I: Minutes (1966) 147.

3.4.1.4 ICAO Annex 6

- *Operation of the aircraft*

Rules with respect to the operation of the aircraft are governed by ICAO Annex 6,[217] which sets forth the "criteria for safe operating practices."[218] Compared to ICAO Annex 2, which primarily focuses on the Rules of the Air in relation to the technical piloting of an aircraft,[219] ICAO Annex 6 addresses the conduct of authorised operators like an airline and the interaction of various stakeholders, including pilots, other flight crew members, and air traffic controllers during aviation operations. ICAO Annex 6 thus also dictates the behaviour of pilots and delineates the responsibilities of States in supervising such behaviour in order to ensure aviation safety.[220]

ICAO Annex 6 explicitly covers the behaviour of the "operator" of the aircraft, alongside the PIC. An operator is defined as an individual, organisation, or enterprise involved in or providing aircraft operations.[221] Hence, in most cases, the operator of the aircraft is an airline. This definition acknowledges that the PIC may also assume the role of an operator. Hence, when assumed to be operators, PICs must also adhere to the prescribed rules and practices under ICAO Annex 6. By involving operators in the compliance process, ICAO Annex 6 significantly contributes to enhancing the safety management function through organisational factors for aviation safety.[222]

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217 Initially, ICAO Annex 6 focused solely on international commercial air transport using airplanes, as general aviation and helicopter operations were uncommon in the 1940s. However, as general aviation expanded and helicopter operations developed, the need for standardized practices in these areas became evident. To prioritise safety progressively incorporated these previously excluded operations into Annex 6. Consequently, additional parts were introduced after Part I to address the specific operational needs of international general aviation airplanes and helicopter operations. This expansion reflects ICAO's evolving mandate to regulate these sectors. For example, Assembly Resolution A15-15, passed in 1965, acknowledged the needs of international general aviation in relation to ICAO's technical activities. Furthermore, the Foreword of Annex 6, Part II (2022) highlights this inclusion. Similarly, Part III extends regulation to helicopter operations, as noted in its Foreword. *See,* ICAO, *Assembly Resolution A15-15: Consideration of the Needs of International General Aviation in Relation to the Scope of ICAO Technical Activities* (1965); ICAO, *Annex 6 Operation of Aircraft*, vol Part II – *International General Aviation – Aeroplanes* (11th edn, 2022), Foreword; ICAO, *Annex 6 Operation of Aircraft*, vol Part III – *International Operations – Helicopters* (11th edn, 2022), Foreword.

218 ICAO, *Annex 6 Operation of Aircraft*, vol Part I – International Commercial Air Transport – Aeroplanes (12th edn, 2022), Foreword. Prof. Huang interprets the purpose of Annex 6 as providing "regulations which address the interface between the personnel, the aircraft and the rules in real time and space" and providing "criteria as to how qualified personnel, governed by certain rules, must control aircraft in given situations." *See also* Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 48.

219 *See* Section 3.4.1.3 of this research.

220 *See also*, Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 48.

221 ICAO, *Annex 6 Operation of Aircraft*, vol Part I – International Commercial Air Transport – Aeroplanes (12th edn, 2022), Definition.

222 *See* Sections 2 and 3.3.1.3 of this research.

However, it also means that the behaviour of pilots is also governed by further rules directed towards "operators."

The following subsections explore these dilemmas.

- *Responsibility for operational control*

The term 'operational control' as laid down in ICAO Annex 6 is essential. This term encompasses authority over critical aspects of a flight, including its "initiation, continuation, diversion, or termination."[223] That authority is wielded with the primary objective of ensuring not only the safety of the aircraft but also flight regularity and efficiency.[224] The operator of the aircraft in commercial aviation, that is, mainly the airline, must ensure its operational control, including, for instance, that all employees "when abroad know that they must comply with the laws, regulations and procedures of those States in which operations are conducted."[225]

When scrutinising the definition of "operational control" in conjunction with ICAO Annex 2 Standard 2.4 on the final responsibility of the PIC,[226] it follows that, as a *general* principle, the PIC bears the ultimate responsibility for operational control. This principle underscores the PIC's overarching obligation to be involved in the exercise of operational control, based on the duty of technical piloting of the flight and ensuring the safety and efficiency of the aircraft unless certain factors impede the PIC's ability to do so.[227]

This differentiation in capacities in which the PIC may be subject to diverse duties is even more articulated when comparing general and commercial aviation. In the realm of general aviation,[228] The PIC is obligated to conform to pertinent rules and to possess a comprehensive understanding of responsibilities in that capacity as PIC and as an operator.[229] In the domain of international commercial air transport and international helicopter operations, it is the operator who is responsible for ensuring that their personnel,

223 ICAO, *Annex 6 Operation of Aircraft*, vol Part I – International Commercial Air Transport – Aeroplanes (12th edn, 2022), Definition.

224 ICAO, *Annex 6 Operation of Aircraft*, vol Part I – International Commercial Air Transport – Aeroplanes (12th edn, 2022), Definition.

225 See, ICAO, *Annex 6 Operation of Aircraft* vol Part I – International Commercial Air Transport – Aeroplanes (11th edn, 2018) Standard 3.1.1.

226 *See also,* ICAO, *Annex 2 Rules of the Air* (10th edn, 2005) Standard 2.3.1 and Section 3.4.1.3 of this research on the special position of the PIC.

227 For instance, force majeure can be the reason for the pilot not to have operational control.

228 General aviation means an "aircraft operation other than a commercial air transport operation or an aerial work operation." *See* ICAO, Annex 6 – Operation of Aircraft (12th edn, 2022) Definition and above.

229 ICAO, *Annex 6 Operation of Aircraft*, vol Part II – International General Aviation – Aeroplanes (11th edn, 2022) Standards 2.1.1.1 and 2.1.1.2.

including pilots, possess the necessary knowledge of the regulations and adhere to them, even if operational control may be delegated.[230]

- *Responsibility of the operators*

Moreover, ICAO Annex 6 introduces measures allowing the State of the Operator to allocate operators with a responsibility for training pilots.[231] In other words, in the case of the commercial operators of aircraft – airlines -, pilots rely on the training of the airlines and, hence, also the knowledge of flight and manoeuvre rules airlines provide as part of the training.[232]

- *Specific reference to the pilot-in-command (PIC)*

Standards outlined in ICAO Annex 6 exhibit a close connection with the obligations drawn up in ICAO Annex 2, with specific reference to those resting on the PIC. This relationship becomes particularly evident in terms of the level of deference provided to the PIC. An example is one of the obligations stipulated in ICAO Annex 6, which pertains to prompt notifications of "violation of local regulations or procedures" by the PIC. [233] This Standard 3.1.6 of ICAO Annex 6 confines the scope of this obligation to an "emergency situation."[234] However, this is generally defined broadly as any situation endangering the safety of the aircraft, even without an accident or incident.

When examining this standard alongside the asserted responsibility and authority of PIC in ICAO Annex 2,[235] something becomes apparent.

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230 ICAO, *Annex 6 Operation of Aircraft*, vol Part I – International Commercial Air Transport – Aeroplanes (12th edn, 2022) Standards 3.1.1 and 3.1.2; ICAO, *Annex 6 Operation of Aircraft*, vol Part III – International Operations – Helicopters (11th edn, 2022) Standards 1.1.1 and 1.1.4.

231 *See*, for instance, ICAO, *Annex 6 Operation of Aircraft*, vol Part I – International Commercial Air Transport – Aeroplanes (12th edn, 2022) Title 4.2 (Operational certification and supervision).

232 *See*, for instance, ICAO, *Annex 6 Operation of Aircraft*, vol Part I – International Commercial Air Transport – Aeroplanes (12th edn, 2022) Title 4.2.4, in particular, Standard 4.2.4.1: "The operator shall ensure that all operations personnel are properly instructed in their particular duties and responsibilities and the relationship of such duties to the operation as a whole."

233 ICAO, *Annex 6 Operation of Aircraft*, vol Part I – International Commercial Air Transport – Aeroplanes (12th edn, 2022) Standard 3.1.6. "If an emergency situation which endangers the safety of the aeroplane or persons necessitates the taking of action which involves a violation of local regulations or procedures, the pilot-in-command shall notify the appropriate local authority without delay. If required by the State in which the incident occurs, the pilot-in-command shall submit a report on any such violation to the appropriate authority of such State; in that event, the pilot-in-command shall also submit a copy of it to the State of the Operator. Such reports shall be submitted as soon as possible and normally within ten days."

234 ICAO, *Annex 6 Operation of Aircraft*, vol Part I – International Commercial Air Transport – Aeroplanes (12th edn, 2022) Standard 3.1.6.

235 ICAO, *Annex 2 Rules of the Air* (10th edn, 2005) Standards 2.3 and 2.4. *See also* Section 3.4.1.3 of this research.

Even when violations are deemed "absolutely necessary in the interest of safety,"[236] pilots must report the violations.

The duty of notification introduces a complication to the potential criminal liability of pilots. This obligation vested with the PIC can inherently and essentially serve not only as a monitoring tool for compliance but also as an instrument for States to undertake prosecution.[237] ICAO Annexes 2 and 6 refrain from explicitly stating that notifications may trigger prosecution.

However, according to Article 12 of the Chicago Convention (1944), States are obliged to ensure prosecution. Hence, States must decide on the existence of an emergency situation. If a State decides that an emergency situation is not at issue, the PIC is obliged to draw up a report on that situation, and this information may thus lead to criminal prosecution.

- *Transfer of the obligations of the State of the Operator to those of the State of Registry*

As articulated in Article 83*bis* of the Chicago Convention (1944),[238] the State of Registry and the State of the Operator of an aircraft may differ. In such instances, the obligations stipulated under Article 12 of the Chicago Convention (1944) may be transferred from the State of the Registry to the State of the Operator pursuant to an international agreement between the two States.[239] Subsequently, the State of the Operator shall ensure prosecution in case of violations of localised flight and manoeuvre rules. This brings with it that the (deviant) rules of yet another jurisdiction may thus be involved in investigations, potentially leading to the prosecution of pilots. It must be remembered in this light that as Article 12 of the Chicago Convention (1944) refers to "[e]ach contracting State", which is entitled to prosecute persons who violate air navigation rules, the State in whose airspace the flight is operated is also entitled to prosecute such persons. Also, practically, the State affected the most by the violations may also institute the prosecution.[240]

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236 *See* Subsection 3.4.1.3 of this research discussing Standard 2.3.1 in ICAO Annex 2.

237 This part are to be discussed in the context of ICAO Annex 19. See Section 3.4.2.2.

238 Chicago Convention (1944), art 83bis (*Transfer of certain functions and duties):* "Notwithstanding the provisions of Articles 12, 30, 31 and 32a, when an aircraft registered in a contracting State is operated pursuant to an agreement for the lease, charter or interchange of the aircraft or any similar arrangement by an operator who has his principal place of business or, if he has no such place of business, his permanent residence in another contracting State, the State of registry may, by agreement with such other State, transfer to it all or part of its functions and duties as State of registry in respect of that aircraft under Articles 12, 30, 31 and 32a. The State of registry shall be relieved of responsibility in respect of the functions and duties transferred."

239 Section 3.3.1.3 of this research.

240 Section 3.3.2 of this research.

Illustratively, in the context of international commercial air transport, a comprehensive chain of obligations emerges with respect to the enforcement of flight and manoeuvre rules in accordance with Articles 11 and 12 of the Chicago Convention (1944). This chain interconnects pilots, the airline as an operator,[241] the State of Registry and the State of the Operator. Each of those actors plays an essential role in ensuring the prosecution of pilots and determination of criminal liability in the event of violations amounting to criminal offences, which emphasises their correlation in terms of establishing criminal liability of pilots. While that correlation may differ in accordance with the adoption, or lack thereof, of applicable SARPs and the facts and circumstances of the situation, it is important, from the perspective of the legal certainty paradigm, to assert its existence. Notably, it is questionable whether pilots will be aware of transfers of obligations of the kind meant here.

3.4.1.5 ICAO Annex 11

- *Air traffic services*

ICAO Annex 11 provides SARPs on air traffic services. ICAO Annex 11 covers the "establishment of airspace, units, and services necessary to promote a safe, orderly and expeditious flow of air traffic,"[242] and the prevention of collisions between aircraft and collisions in the manoeuvring areas on the ground,[243] which is part of air traffic control services.[244] Air traffic services form a dimension of the flight and manoeuvre of aircraft, which Article 12 of the Chicago Convention (1944) alludes to. [245]

The role of ICAO Annex 11 is related to ICAO Annex 2, which governs the Rules of the Air. ICAO Annex 11 claims that it shares the same purpose as ICAO Annex 2, which is "to ensure that flying on international air routes is carried out under uniform conditions designed to improve the safety and efficiency of air operation,"[246] with the support of supplementary materials such as PANS-Air Traffic Management (ATM).[247]

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241 In the context of safety management, an airline is an organisational factor attributing to aviation safety. *See* Section 2.2.5.

242 ICAO, *Annex 11 Air Traffic Services* (15th edn, 2018) Foreword and Standard 2.2. which prescribes the objectives of the air traffic services.

243 ICAO, *Annex 11 Air Traffic Services* (15th edn, 2018) Definition – Air Traffic control service

244 Ibid (ICAO, *Annex 11 Air Traffic Services* (15th edn, 2018) Definition – Air Traffic control service). Each Contracting State is responsible for providing air traffic services under its jurisdiction and is supposed to designate an authority to provide such services. *See* ICAO, *Annex 11 Air Traffic Services* (15th edn, 2018) Standards 2.1.1 and 2.1.3.

245 ICAO, *Annex 11 Air Traffic Services* (15th ed, 2018) Definition of Air Traffic: "[A]ll aircraft in flight or operating on the manoeuvring area of an aerodrome"

246 ICAO, *Annex 11 Air Traffic Services* (15th edn, 2018) Foreword and Standard 2.2. prescribing the objectives of the air traffic services.

247 ICAO, *Annex 11 Air Traffic Services* (15th edn, 2018) Foreword.

The operation of air traffic services is critical for pilots' operations. They are designed to substantially avoid accidents and incidents by influencing pilots' behaviours. However, these services do not necessarily always assist pilots in avoiding violations of flight and manoeuvre rules. A complex combination of factors and actors can contribute to the cause of accidents and incidents, involving not only the behaviour of pilots but also that of air traffic controllers and operators of airports. Moreover, the responsibility of States may be at stake when ICAO SARPs and other ICAO rules have not been implemented properly in the State in which the accident or incident has occurred or governmental officials have not taken sufficiently convincing action to avoid the accident or incident.[248] Given the complexity that may be at issue and the multiplicity of factors that may have contributed to accidents, it may be difficult to discern the role played therein by pilots and, therewith, their potential criminal liability.

Finally, the manufacturer of the aircraft or its component parts may also be responsible for accidents (and be prosecuted). In the *Überlingen* mid-air collision case of 2002, the Supreme Court of Spain found the manufacturers partially liable for the damages caused by the collision avoidance system, which provided different advice than the air traffic control, which is also meant to assist the pilots' decisions.[249] Although civil liability is examined differently than criminal liability, this judgment further demonstrates how it may be difficult to isolate pilots' actions from all other factors within the international civil aviation system.

- *Flight information services and the pilot-in-command (PIC)*

The management of Air Traffic Services in ICAO Annex 11 includes "flight information service," which is a critical interface for pilot interaction with the air traffic controllers.[250] The provision of such flight information service involves pilots receiving advice for the safety of the flight and reporting the flight's location to the unit responsible for delivering flight information

248 There are two examples: the Linate Airport crash in 2001 and *Überlingen* mid-air collision in 2002. In the Linate Airport crash, two aircraft collided where the relevant accident investigation report contained considerations on pilots behaviours as the cause of accidents, but emphasised the potential role of the implementation status of the relevant SARPs to assist pilots. In the case of the Überlingen mid-air collision, the imminent causes of the accident involved the behaviour of the air traffic controller, where the inadequate implementation of the ICAO procedures was also considered as the systemic cause of the accident. *See*, Agenzia Nazionale Per LA Sicurezza Del Volo, *Final Report – Accident Involved Aircraft Boeing MD-87, registration SE-DMA and CESSNA 252-A, registration D-IEVX, Milano Linate airport, October 8 2001*, 2004) and German Federal Bureau of Aircraft Accidents Investigation, *Investigation Report (Accident, 1 July 2002, (near) Ueberlingen/Lake of Constance/Germany)* (2004)

249 *See*, Mendes de Leon PMJ, *Introduction to Air Law* (11th edn, Wolters Kluwer 2022) 365 and 445.

250 Flight information service means a "service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights." *See* ICAO, *Annex 11 Air Traffic Services* (15th edn, 2018) Definition. *See also* Standard 2.3.2. in the same Annex, which repeats the definition as an objective of "flight operation service."

service.[251] The purpose of the flight information service extends beyond the immediate flight environment,[252] as it includes "any other information likely to affect safety,"[253] such as collision hazards.[254] Pilots can make an informed decision based on the flight information provided.

However, even though the flight information service means to support pilots to ensure safety,[255] ICAO Annex 2 dictates that the final responsibility for the safe operation of the aircraft still rests with the PIC.[256] The Note to Standard 4.1.1 explicitly reiterates that principle as follows:

> "*Flight information service does not relieve the pilot-in-command of an aircraft of any responsibilities and the pilot-in-command has to make the final decision regarding any suggested alternation of flight plan*."[257]

Hence, if the flight information service asks a PIC to make an unsafe decision and or violate the rules of the air, and that request leads to an accident or incident, compliance with the said request may not help the PIC in his or her defence when being prosecuted.

In addition, it seems to me that the quoted note to Standard 4.1.1 reaffirms that the PIC holds not only the final but also rather subjective.[258] That fol-

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251 *See* multiple Standards referring to the position reporting obligation, such as Standard 4.9 in ICAO, *Annex 2 Rules of the Air* (10th edn, 2005).

252 Examples of such is abrupt meteorological conditions, volcanic eruptions, changes in availabilities of radio navigation services, or changed conditions of the ground facilities. *See* ICAO, *Annex 11 Air Traffic Services* (15th edn, 2018) Standard 4.2.1.

253 ICAO, *Annex 11 Air Traffic Services* (15th edn, 2018) Standard 4.2.1.

254 ICAO, *Annex 11 Air Traffic Services* (15th edn, 2018) Standard 4.2.2.

255 ICAO, *Annex 11 Air Traffic Services* (15th edn, 2018) Standard 4.2.1.

256 *See* Sections on responsibilities and duties of the PIC under ICAO Annexes 2 and 6 in Sections 3.4.1.3 and 3.4.1.4 of this research.

257 Notes contained in Annexes are the material approved by the Council "where appropriate, to give factual information or references bearing on the Standards or Recommended Practices in question, but not constituting part of the Standards or Recommended Practices."

258 Prof. Matte opines the "sole and final authority" of the PIC. Following the opinion of Prof. Matte, Dr Abeyratne suggests that a "prima facie responsibility" is generally accepted. According to Captain Geut, the then air laws of the Netherlands, UK, USA, and New Zealand postulated such in 1988. According to Dr Kronlachner in 2022, the EU also supported the final authority of the PIC. *See* Matte NM, *The International Legal Status of the Aircraft Commander* (The Carlswell Company Limited / Pedon 1975) 44 and 46; Abeyratne R, 'Negligence of the Aircraft Commander and Bad Airmanship – New Frontiers' (1987) 12(1) Air and Space Law 3, 4; Geut H, 'The Law: The pilot and the Air Traffic Controller – Division of Responsibilities' (1988) 13(6) Air and Space Law 256, 257; Kronlachner A, *The Legal Status of the Pilot-in-Command* (PhD thesis, Johannes Kepler University Linz 2022) 120. *See also* the quote of Dr Kamminga on the accident report of the accident to Viking G-AHPN on 31 October 1950 for a landing under unfavourable weather conditions, which was considered imprudent at Kamminga MS, *The Aircraft Commander in Commercial Air Transportation* (Martinus Nijhoff 1953) 61: "…I do not think it necessary to recommend any change in the existing system by which the pilot is ultimately responsible for the decision whether or not to divert. Indeed, I think that if the decision whether or not to land was taken from him, the pilot might be encouraged to attempt a landing in all cases in which he was not instructed from the ground to divert."

lows from the PIC's authority, which may overrule any advice from the air traffic service providers for the safe flight and manoeuvring of an aircraft based on their own knowledge and risk and safety assessments.[259]

3.4.2 Prosecution in relation to safety management

3.4.2.1 ICAO Annex 13

- *Accident and incident investigations*

ICAO Annex 13 lays down substantive norms and procedures concerning the technical investigation of accidents and incidents.[260] It reflects the safety paradigm in light of Article 26 of the Chicago Convention (1944).[261]

In the following subsections, I elucidate the obligations of States under ICAO Annex 13 and examine how they positively or negatively interact with the paradigms of safety and legal certainty.

- *Applicability of ICAO Annex 13 in light of the definition of the term 'accident'*

Standard 2.1 of ICAO Annex 13 asserts that procedures prescribed in Annex 13 apply to investigations of 'accidents' and 'incidents'.[262] The obligation of Article 26 to initiate an investigation according to Annex 13 arises only for events falling under the scope of these two terms, accidents and incidents as defined in Annex 13. The term 'accident' indicated in Article 26 is subject to a technical interpretation, as per the most recent edition of Annex 13.[263] The technical definition has been subject to evolution since the first release of Annex 13 in 1951.[264] While Article 26 of the Chicago Convention (1944) does not mention the term "incident", Annex 13 does.

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259 Yet, Captain Geut argues that the PIC and air traffic controller practically share a concurrent authority. *See* Geut H, 'The Law: The pilot and the Air Traffic Controller – Division of Responsibilities' (1988) 13(6) Air and Space Law 256, 258

260 Section 3.3.2 of this research.

261 Section 3.3.3 of this research.

262 "Unless otherwise stated, the specifications in this Annex apply to activities following accidents and incidents wherever they occurred." ICAO, *Annex 13 Aviation Incident and Accident Investigation* (12th edn, 2020) Standard 2.1. However, as analysed in Section 3.3.2 of this research, the scope of Article 26 does not necessarily prevent States from conducting investigations further according to procedures in ICAO Annex 13.

263 ICAO, *Annex 13 Aviation Incident and Accident Investigation* (12th edn, 2020) Foreword.

264 The definition of an 'aircraft accident' used to mean "an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which: a) any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, or b) the aircraft receives substantial damage." In its third edition, the second condition of an occurrence considered to be an "aircraft accident" would require "damages or structural failure" which is related to a failure of technical factors of the safety paradigm. Since the fourth edition, the condition has included when the aircraft is inaccessible or missing. *See*, ICAO, *Annex 13 Aircraft Accident Inquiry* (1st edn, 1951) 9; ICAO, *Annex 13 Aircraft Accident Inquiry* (3rd edn, 1973) 9; ICAO, *Annex 13 Aircraft Accident Investigation* (4th edn, 1976) 9.

Changes in the definition of 'accident', updated in ICAO Annex 13 editions and the expansion of its scope, mark an interesting evolution in the promotion of the underlying safety paradigm. This evolution raises questions as to compliance with the obligation under Article 26 of the Chicago Convention (1944). Initially, the definition required investigation of events resulting in death, serious injuries of any persons, or substantial damage to the aircraft.[265] The current scope extends to events caused by technical factors and those involving the inaccessibility of the aircraft post-accident.

ICAO Annex 13 clarifies that Article 26 of the Chicago Convention (1944) moreover does not preclude Contracting States from taking actions outside its scope.[266] At least since 2020, when the most recent edition of Annex 13 was issued, States have had freedom, without notifying differences, to investigate accidents and incidents caused by non-technical defects such as pilot actions or other causes.[267] SARPs contained in Annex 13 apply to *any* technical investigations that States intend to conduct, provided they are implemented in domestic law and no deviations have been notified to ICAO.[268] An accident resulting from pilots' violations of the applicable flight and manoeuvre rules is no exception to this premise.

The broader understanding of accidents under ICAO Annex 13, as compared to Article 26 of the Chicago Convention (1944),[269] evidently contributes to promoting safety culture as part of safety management. However, clearly, it may also have implications for the prosecution of pilots. As technical investigations may take place in more circumstances, it means that more 'accidents' in a broad sense may also develop into criminal prosecutions of pilots. The implications of this regime for legal certainty are assessed in the following sections.

265 The persons would be required to be either in, upon the aircraft, or having been contacted directly with the aircraft or its part.

266 ICAO, *Annex 13 Aviation Incident and Accident Investigation* (12th edn, 2020) Foreword.

267 ICAO, *Annex 13 Aviation Incident and Accident Investigation* (12th edn, 2020) (x).

268 A technical investigation includes examination of cockpit voice recordings and airborne image recordings and any transcripts from such recordings, statements taken from persons by the accident investigation authority in the course of their investigation, communications between persons having been involved in the operation of the aircraft, medical or private information regarding persons involved in the accident or incident; recordings and transcripts of recordings from air traffic control units; analysis of and opinions about information, including flight recorder information. *See also*, Section 3.3.2 of this research.

269 ICAO, *Annex 13 Aviation Incident and Accident Investigation* (12th edn, 2020), Definitions. The definition is related to the time scope and results of the accidents, such as fatalities or damages sustained in the aircraft, but not the cause of the accident. This is comparable to the first definition of "aviation accident," which covers a narrower scope. *See* (n 704) for the 1st edition of Annex 13. Moreover, Annex 13 also covers "incidents", which mean an "occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation."

- *Purpose of the accident investigation*

Standard 3.1 of ICAO Annex 13 to the Chicago Convention (1944) – as will be explained below, seemingly paradoxically, in light of the above – provides the following:

> *"The sole objective of the investigation of an accident or incident shall be the prevention of accidents and incidents. It is not the purpose of this activity to apportion blame or liability."*

The objective of accident investigation introduced in 1974 aligns with the safety paradigm. Standard 3.1, embodying this objective, was first incorporated into the 4th edition of ICAO Annex 13 only in 1976,[270] despite prior discussions on the aim of the investigations, dating back to the Chicago Conference preparing the Chicago Convention (1944).[271] The wording of this Standard has also evolved over time, transitioning from its initial text describing the "prevention of accidents and incidents" as "fundamental" for the achievement of safety in its current formulation, referring to this being the "sole objective" thereof.[272]

Standing as a cornerstone of "considerable legal interest," Standard 3.1 finds resonance in the concept of Just Culture, as discussed in the context of the safety and transparency paradigms in Section 2.3.5.[273] Investigations under ICAO Annex 13 aim to ascertain the *causes* of accidents, identify contributing factors, and provide recommendations to prevent the recurrence of such accidents. The emphasis is on learning for the sake of safety rather than punishment for possibly criminal behaviour. This approach aligns with the Just Culture concept as part of a safety culture focusing on reporting,

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270 *See also* ICAO, *Annex 13 Aircraft Accident Investigation* (4th edn, 1976) and ICAO, 'Annex 13 – Aircraft Accident and Incident Investigation' (Unknown) <https://applications.icao.int/postalhistory/annex_13_aircraft_accident_and_incident_investigation.htm> accessed 13 October 2024. Both documents refer to the Accident Investigation and Prevention Divisional Meeting of 1974 as the moment of consensus for the prime objective of the accident investigation to prevent accidents.

271 *See* the section analysing Article 26 of Chapter 3. Although it was not specifically mentioned in the preparatory work of the Chicago Convention (1944), possibly the first attempt which can be traced to stipulate the investigation authority's independence is dated back to the Air Commerce Act of the U.S. in the 1930s. *See* Miller CO, 'Aviation Accident Investigation: Functional and Legal Perspectives' (1981) 46(2) Journal of Air Law and Commerce 237, 239

272 The initial text of Standard 3.1 of ICAO Annex 13 reads as follows: "The fundamental objective of the investigation of an accident or incident shall be the prevention of accidents and incidents. It is not the purpose of this activity to apportion blame or liability." *See* ICAO, *Annex 13 Aircraft Accident Investigation* (4th edn, 1976).

273 Milde M, 'Aircraft Accident Investigation in International Law' (1984) 9(1) Air and Space Law 61, 63. Prof. Milde refers to two other standards, which include Standard 5.12 of the ICAO Annex 13. The following subsection contains the discussion on this point.

learning and improvement by seeking to understand the systemic factors that may have contributed to an accident.[274]

Building on this Standard, the following subsections are dedicated to tracing the manifestation and reflection of Just Culture in ICAO Annex 13.

- *Disclosure of records*

While maintaining the objective of preventing future accidents through the lessons learned from accident investigations, the public release of findings and causes thereof appears inherently logical, aligning with the transparency paradigm. In the past, as long as the timing of the release was mutually agreed upon by the States involved in the investigation and considered in the " public interest," the disclosure of accident records was permissible.[275] However, this practice inadvertently contributed to the rise of a blame culture. A shift from the blame culture to Just Culture occurred in 1976 when the purpose of investigations was standardised.[276]

Importantly, ICAO concurrently clarified its stance regarding the possible establishment of criminal liability. Recommendation 5.12 of ICAO Annex 13 in 1976 specifically addresses the non-disclosure of certain records collected during the investigations in all cases. The records to be withheld pertained to the following three types:

- *Statements from persons responsible for the safe operation of the aircraft;*
- *Communications between persons having responsibility for the safe operation of the aircraft; and*
- *Opinions expressed in the analysis of information, including Flight Recorder information.*[277]

The non-disclosure of such qualitative records, in which identities and actions of the pilots could be identified, continues to be in apparent conflict between mostly vertical transparency and safety paradigms.[278] Pilots may be hesitant or refuse to express their views on the causes of accidents when such statements may lead to prosecution and, ultimately, their criminal

274 Section 2.2 of this research.

275 *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 1227 and 1229. Despite the freedom to disclosure, the concern on the use of records collected during the investigation was a long-standing concern since 1926. *See*, Fiorita DM, 'The International Framework of Aircraft Accident Investigation – Contemporary Issues' (1994) 19 Annals of Air and Space Law 151, 165.

276 ICAO, *Annex 13 Aviation Incident and Accident Investigation* (12th edn, 2020) Standard 3.1

277 Standards 5.12 on the disclosure of records used to be a Recommended Practice when initially introduced. *See* ICAO, *Annex 13 Aircraft Accident Investigation* (4th edn, 1976).

278 Vertical transparency is a "tool to assist citizens in trusting their government," referring to how the government shares its decision-making with the citizens. *See*, Section 2.3.1 of this research.

liability.[279] The safety paradigm is helped by information provided by pilots because it may contribute to the prevention of such accidents in the future. Non-disclosure of information gathered in the technical investigation to the public and possibly prosecutorial authorities may, however, breach vertical transparency, which citizens may wish to rely on under national constitutions and regulations.

In 1981, Recommendation 5.12 obtained the status of Standard 5.12.[280] Raising the legal status of that Recommendation (5.12) implies either notification to ICAO of differences or implementation of what is now a Standard (5.12) into domestic law.[281] This change in status reflects the growing needs of the international civil aviation community in terms of horizontal transparency in the sense of disclosure to aviation authorities and actors of all pertinent information.[282]

Furthermore, the material scope of Standard 5.12, as expanded with the rise of its status, became even more relevant for the potential prosecution of pilots. Standard 5.12 now includes "medical or private information regarding persons involved in the accident or incident" and "cockpit voice recordings and transcripts from such recordings" in its non-disclosure list.[283] Pilots' medical or private information or voice recordings and transcripts, which could reveal the behaviours and intentions of the pilots and their identity, collected during the technical investigation, ought to be protected. This extension has been criticised for compromising vertical transparency.[284] However, the rise of the status from a Recommended Practices to a Standard demonstrates the continuous support of ICAO and Contracting States for extended non-disclosure of certain records under Standard

279 I say continuous support as the ICAO Assembly, technical panels, and States produced multiple resolutions, working papers, and amendments of Standard 5.12 of ICAO Annex 13.

280 Recommended Practices may also become Standards. *See* Section 1.5.2 of this research.

281 *See* Section 1.5.2.5 of this research.

282 Horizontal transparency refers to openness and information sharing between entities, as in pilots providing the most relevant information to the accident investigation board.

283 ICAO, *Annex 13 Accident and Incident Investigation* (6th edn, 1981) Standard 5.12.

284 Knight JR, 'Accident Investigation Procedures as Viewed by a Technician' (1984) 9(1) Air and Space Law 30, 32: "It is to be regretted that such Freedom of information laws, while potentially giving greater protection to the individual can have an adverse effect when considering the wider public' s interest … l am not advocating that information obtained during an investigation should be withheld as confidential for its own sake, but when it is necessary to release information in the course of the investigation, it should be used responsibly." *See also* Durand CJ, 'Aircraft Accident Investigation: The Need for a Stronger International Regime ' (LL.M. Thesis, McGill University 1993) 74.

5.12,[285] to be interpreted in conjunction with Appendix 2 on the protection of records contained in ICAO Annex 13.[286]

The next subsection below, regarding the importance of balance between the protection of safety and the administration of justice, elaborates further on this issue.

Importantly, the supportive atmosphere for the non-disclosure of records in aviation is aligned with the purpose of investigations to manage safety reactively, which approach contributes to the creation of a Just Culture. To manage safety, one needs data and evidence to learn lessons and to prevent future accidents.[287] At the same time, such collected records help reactive and proactive management of safety for the data and risk-based approaches of the civil aviation sector.[288]

- *Separation between technical and judicial investigations*

Ensuring the sole purpose of ICAO Annex 13 investigations, that is prevention of accidents, used to involve the separation of technical investigations from criminal and other inquiries. In 1994, the Contracting States of the Chicago Convention (1944) created the independence of the technical investigation, mitigating the potential interference of judicial authorities. As said, the wording of Standard 3.1 of ICAO Annex 13 also changed from referring to the prevention of accidents as a "fundamental" to the "sole" objective of investigations.[289]

The apparent paradox referred to above is resolved through the following regime. In 1994, ICAO formulated Annex 13 in such a fashion that "[a]ny judicial or administrative proceedings to apportion blame or liability should be separate from any investigation conducted under the provision

285 Section 2.3.2.3 of this research and sources referred therein. *See also* ICAO, *Assembly Working Paper A33-WP/46 – Non-Disclosure of Certain Accident and Incident Records* (2001); ICAO, *Assembly Working Paper A36-WP/10 – Protection of Safety Information* (2007), ICAO, *Assembly Working Paper A37-WP/66 – Progress Report on the Protection of Certain Accident and Incident Records, and Safety Data Collection and Progressing Systems* (2010). ICAO Resolutions also show these efforts. *See* ICAO, *Assembly Resolution A33-17 – Non-disclosure of certain accident and incident records* (2001); ICAO, *Assembly Resolution A35-17: Protecting Information from Safety Data Collection and Processing Systems in order to Improve Aviation Safety* (2004).

286 However, the weak legal fore was not solved, although the Attachment supplement was used as a guide. *See* the concerns raised in Van Wijk AA, 'Amendment 8 to ICAO Annex 13 ('Aircraft Accident Investigation') – Some (Legally Oriented) Guidance in the Application of Para 5.12 ('Disclosure of Records') at last' (1988) 13 Air and Space Law 193, 204.

287 Section 2.2 of this research.

288 As further explained in Section 3.4.2.2. below.

289 ICAO, *Annex 13 Aircraft Accident and Incident Investigation* (8th edn, 1994) Standard 3.1. If the wording remained "fundamental," the purpose would not have been as clear as it is now, in my opinion.

of this Annex."[290] This means that judicial proceedings, including criminal prosecution, are not excluded by Annex 13. Importantly, however, a limitation is brought about. The addition of 1994, namely, shows the intention to separate accident and incident investigations under Article 26's obligation from any type of judicial proceeding potentially held under the Article 12 obligation. Captain Geut argues that this separation implies "no interaction" between the two investigations at all.[291]

However, the addition in 1994 was not as a Standard, but a Recommended Practice. As elucidated in Section 1.5.2.6 of Chapter 1 of this study, the binding force of Recommended Practices contained in ICAO Annexes is not as strong as that of Standards. It followed that the Contracting States were not obliged to separate accident investigations from judicial investigations. Prof. Schubert recognises that concurrent investigations may occur under paradigms beyond safety,[292] with one agency examining technical causes while another actively conducts criminal investigations.[293] However, this does not necessarily mean that the concurrent investigation would more easily lead to information sharing due to Standard 5.12.

In 2010, ICAO reaffirmed its support for the separation of investigations in at least two ways: by raising the status of the Recommended Practice 5.4.1 to become a Standard and by adding clarification.[294] This Standard (5.4.1) dictates that the technical investigation conducted under ICAO Annex 13 must be separated from legal proceedings designed to establish criminal or civil liability. This Standard reads as follows:

> *5.4.1 "Any investigation conducted in accordance with the provisions of this Annex shall be separate from any judicial or administrative proceedings to apportion blame or liability."*

The Note attached to Standard 5.4.1 reads as follows:

> "*Separation can be achieved by the investigation being conducted by State accident investigation authority experts, and any judicial or administrative proceedings being conducted by other appropriate experts. Coordination, as per 5.10 between the two*

290 ICAO, *Annex 13 Aircraft Accident and Incident Investigation* (8th edn, 1994) Recommendation 5.4.1. See, *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 1229 and 1230.

291 Geut H, 'IFALPA, Legal Committee Meeting' (1992) 17(3) Air and Space Law 166, 166.

292 Schubert F, 'Legal Barriers to a Safety Culture in Aviation' (2004) 29 Annals of Air and Space Law 19, 36.

293 NTSB Bar Association, 'Aviation Professionals and the Threat of Criminal Liability – How Do We Maximize Aviation Safety' 67 Journal of Air Law and Commerce 875, 894.

294 Specification 5.4.1 since 2010 is slightly rephrased. It reads that "[a]ny investigation conducted in accordance with the provisions of this Annex shall be separate from any judicial or administrative proceedings to apportion blame or liability."

processes would likely to be required at the accident site and in the gathering of factual information, with due consideration to the provisions in 5.12."[295]

This note supplements the current Standard 5.4.1 by suggesting that investigations be conducted by different experts, with "due consideration" to be given to non-disclosure of certain records.[296] This term evidently can pose challenges for judicial authorities in accessing certain evidence unless States notify ICAO of differences between domestic law and Standard 5.4.1.

At the same time, non-disclosure duties should not prevent Contracting States from fulfilling their duty to ensure prosecution. Besides finding a solution in obtaining evidence through autonomous means of judicial authorities, one manner in which fulfilment of the latter duty may be achieved is by State notification of differences or non-compliance, which will render the legal force of Standards void in that State.[297] Such notification will allow States to combine judicial and technical investigations in accordance with their domestic regulations, including enabling the exchange of information if the deviation from Standard 5.12 is also notified to ICAO.

- *The importance of striking a balance between the protection of safety and the administration of justice*

The purpose behind non-disclosure and the separation of investigations is evidently to prevent any "adverse impact on the availability of information in that or future investigations."[298] The term "investigations" refers to investigations conducted under ICAO Annex 13. This goal aligns with Just Culture as part of a positive safety culture by transforming information

295 Specification 5.12 is non-disclosure of records. Specification 5.10 discusses the required coordination between investigators and judicial authorities to successfully determine causes. *See also* ICAO, *Annex 13 Aviation Incident and Accident Investigation* (12th edn, 2020) Standard 5.10: "The State conducting the investigation shall recognize the need for coordination between the investigator-in charge and the judicial authorities. Particular attention shall be given to evidence which requires prompt recording and analysis for the investigation to be successful, such as the examination and identification of victims and read-outs of flight recorder recordings."

296 In addition, Attachment of ICAO Annex 19 provides "material supplementary to SARPs" to guide the applications of SARPs in how to apply Principle of Protection and Principle of Exceptions.

297 *See* Section 1.5.2. of this study on the legal force of SARPs.

298 ICAO, *Annex 13 Aircraft Accident Investigation* (4th edn, 1976) Recommendation 5.12.

from non-disclosed records into safety-related insights, including safety data and safety information.[299]

Prosecution in Article 12 of the Chicago Convention (1944) does not necessarily contradict the aim of the protection of safety information provided under ICAO Annex 13. Annex 13 explicitly states that "[i]t is not the purpose of protecting safety information to interfere with the proper administration of justice in States,"[300] In criminal law, the administration of justice falls under the autonomy of States.[301] As said, ICAO Annex 13 does not *per se* restrict prosecution as part of a State's autonomy.[302]

However, the conflict between the safety and legal certainty paradigms becomes apparent in achieving both the protection of safety and the administration of justice through a "balancing test".[303] States are tasked with finding the proper balance of any aviation paradigms in their national laws and procedures, aligning with ICAO's regime, while considering, on the one hand, their constitutional and other requirements pertaining to the accessibility of citizens to public information as a corollary of the transparency paradigm and,[304] and on the other hand, to give effect to the duty to prosecute where appropriate under Article 12 of the Chicago Convention

299 Safety information is "safety data processed, organized or analysed in a given context so as to make it useful for safety management purposes." ICAO Annex 19 defines safety data as "a defined set of facts or set of safety values collected from various aviation-related sources, which is used to maintain and improve safety. An activity that collects safety data includes accident or incident investigations. *See* ICAO, *Annex 19 Safety Management* (2nd edn, 2016) Definition. According to the ICAO, *Amendment 11 of Annex 13 Aircraft Accident and Incident Investigation* (2001) Attachments E, records pertaining to accident and incident investigations, mandatory incident reports, systems voluntary incident reports, and self-disclosure.

300 ICAO, *Amendment 11 of Annex 13 Aircraft Accident and Incident Investigation* (2001) Attachments E, 2.2.

301 Van Dam R, 'Preserving safety in aviation: "just culture" and the administration of justice' (2009) 22 Air and Space Lawyer 1, 5. *See also*, Van Wijk AA, 'Amendment 8 to ICAO Annex 13 ('Aircraft Accident Investigation') – Some (Legally Oriented) Guidance in the Application of Para 5.12 ('Disclosure of Records') at last' 13 Air and Space Law 193, 200.

302 *See also,* ICAO, *Amendment 11 of Annex 13 Aircraft Accident and Incident Investigation* (2001) Attachments E, 2.3 which highlights the role of national laws and regulations to strike a balance between safety and administration of justice.

303 ICAO Annex 13 offers this since 2016. Balancing test in Annex 13 refers to "the determination by the competent authority, in accordance with 5.12, of the impact the disclosure or use of accident and incident investigation records may have on current or future investigations." The working paper from ICAO thoroughly summarises details of the balancing test and other amendments made. See, ICAO, *Asia Pacific Regional Aviation Safety Team Working Paper APRAST/8-WP/8: Amendment 15 to Annex 13* (2016). ICAO also further proposes certain factors to be considered in the disclosure of evidence and records collected during the technical investigation. *See also*, ICAO, *Annex 13 Aviation Incident and Accident Investigation* (13th edn, 2024) Appendix 2.

304 Section 2.4 of this research.

(1944). Duties to non-disclose and keep investigations separate can hinder both of those efforts.

Jurisdictions around the world may have varying perceptions on how to conduct the balancing test, considering national legislation, including constitutional provisions.[305] This variety of perceptions does not help to strengthen the paradigm of legal certainty because pilots flying from one State to another are involved in myriad jurisdictions.

3.4.2.2 ICAO Annex 19

- *Safety management*

Prof. Mendes de Leon characterises ICAO Annexes as "living instruments" that evolve over time to regulate aviation safety.[306] Amongst these Annexes, ICAO Annex 19 stands out as the "youngest Annex,"[307] showcasing the dynamic nature of ICAO Annexes. As stated in Section 1.7.2.4 of Chapter 1, Annex 19 is exclusively dedicated to the Safety Management System (SMS), a concept considered innovative upon its introduction into international civil aviation. The SMS is a systematic approach to managing safety by identifying, assessing, and mitigating risks, with the overarching goal of continuous improvement in safety performance.[308]

While ICAO Annex 19 does not govern the criminal liability of pilots, it endeavours to regulate the use of safety data and information in criminal proceedings, particularly in cases where no technical accident investigations have been instituted. Even in the absence of a formal accident investigation, the actions of pilots are still scrutinised within the safety management framework under ICAO Annex 19.

- *Principles of protection in ICAO Annex 19*[309]

The protection afforded to the position of pilots in legal proceedings provided by ICAO Annex 19 does not significantly differ from that under ICAO Annex 13. For instance, there is also a conditional non-disclosure duty under ICAO Annex 19, meaning judicial authorities may not simply use certain records to determine criminal liability. Importantly, the scope of ICAO Annex 19 surpasses ICAO Annex 13, which primarily targets reactive management.[310] The significant difference is emphasised here: the principles outlined in ICAO Annex 19 apply to all safety data, safety information,

305 Choi J and Truxal SJ, *Accessibility of Investigation Records from the Aircraft Accident at Bijlmermeer – A Comparative Legal Analysis* (2024).
306 Mendes de Leon PMJ, *Introduction to Air Law* (11th edn, Wolters Kluwer 2022) 29.
307 Mendes de Leon PMJ, *Introduction to Air Law* (11th edn, Wolters Kluwer 2022) 29.
308 *See* definitions provided in ICAO, *Safety Management* (1st edn, 2013); ICAO, *Annex 19 Safety Management* (2nd edn, 2016).
309 Section 2.3.2.4 of this research.
310 Section 1.7.1.3 of this research.

and sources collected during the proactive safety management activities of Contracting States. In other words, evidence and records collected for the technical investigation of accidents and incidents do not fall under the scope of the protection provided under ICAO Annex 19.[311]

Within the realm of data protected by ICAO Annex 19, various norms laid down in this Annex are pertinent to violations of pilots of flight and manoeuvre rules. These include safety reporting, operational performance monitoring, inspections, audits, surveys, and safety studies and reviews.[312] Once these data are "processed, organized or analysed in a given context to make it useful for safety management purposes,"[313] they transform into "safety information." Such safety information also falls within the ambit of protection provided by ICAO Annex 19. The enumerated safety data and insights derived from them can unveil pilot's violations, potentially giving rise to criminal liability, even in the absence of an accident or a formal investigation thereof. However, the protections are, again, conditional, and safety data and information may be disclosed if they fall under the principles of exceptions.

- *Principles of exceptions under ICAO Annex 19*

The principles of exceptions are in Standard 5.3.3,[314] based on its recognition of absolute and complete sovereignty and autonomy of States.[315] Conditions for disclosure are detailed in the conditions of Appendix 3 within the same Annex. These conditions read:[316]

> "***Principles of exceptions***
> *Exceptions to the protection of safety data, safety information and related sources shall only be granted when the competent authority:*
> *a) determines that there are facts and circumstances reasonably indicating that the occurrence may have been caused by an act or omission considered, in accordance with national laws, to be conduct constituting gross negligence, willful misconduct or criminal activity;*
> *b) after reviewing the safety data or safety information, determines that its release is necessary for the proper administration of justice, and that the benefits of its release outweigh the adverse domestic and international impact such release is likely to have on the future collection and availability of safety data and safety information; or*

311 *See* Section 3.4.2.1 of this research. *See also* ICAO, *Annex 19 Safety Management* (2nd edn, 2016) APP 3-1.
312 ICAO, *Annex 19 Safety Management* (2nd edn, 2016) Definitions. The list is collected based on the analysis of the principle of ICAO Annex 19.
313 ICAO, *Annex 19 Safety Management* (2nd edn, 2016) Definitions.
314 ICAO, *Annex 19 Safety Management* (2nd edn, 2016) Standard 5.3.1: "States shall accord protection to safety data captured by, and safety information derived from, voluntary safety reporting systems and related sources in accordance with Appendix 3."
315 Section 1.4.3 of this research.
316 ICAO, *Annex 19 Safety Management* (2nd edn, 2016) APP 3-2.

c) after reviewing the safety data or safety information, determines that its release is necessary for maintaining or improving safety, and that the benefits of its release outweigh the adverse domestic and international impact such release is likely to have on the future collection and availability of safety data and safety information."

The exceptions formulated in ICAO Annex 19 closely mirror those found in ICAO Annex 13.[317] Annex 19 directs States to avoid paradigm conflicts in three scenarios: violations that may constitute "gross negligence, wilful misconduct or criminal activity;" the prosecution outweighing the benefit of the protection of safety data or information; or when the prosecution of pilots by releasing the safety data and information contributes to safety management.

Again, while Annex 19 is primarily designed to support the safety paradigm, it also acknowledges the transparency paradigm and supports the administration of justice. In my opinion, ICAO Annex 19 strikes a better balance compared to ICAO Annex 13 by providing the principle of exceptions, thereby recognising the importance of horizontal and internal transparency and the administration of justice. Moreover, ICAO Annex 19 offers more concrete guidance that States can utilise to balance conflicting interests. ICAO Annex 19 requires States to establish "authoritative safeguards" to protect sources like pilot statements and other data that can be linked to them, such as flight data recorders, also in the event that prosecution is deemed necessary, before releasing data as evidence of such.[318]

However, acknowledgement of the benefit of balancing interests does not necessarily aid legal certainty. Rather, Annex 19, as does Annex 13, allows disclosure which may mean potential prosecution and criminal liability. Reference to (subjective) elements such as "gross negligence, wilful misconduct or criminal activity" as determinants in this regard again exacerbates clarity issues.[319]

- *Exceptions to exceptions: public disclosure*

In contrast to ICAO Annex 13, ICAO Annex 19 places a more prominent emphasis on vertical transparency. This is evidenced by Annex 19's explicit mention of "right-to-know laws" urging States to establish exceptions to ensure vertical transparency.[320] This approach can be explained by changes in perception over time, dictating that information collected by public authorities must be accessible for citizens in the jurisdiction under whose authority that information has been gathered.[321]

317 *See* Sections 2.3.2.3 and 3.4.2.1 of this research.
318 ICAO, *Annex 19 Safety Management* (2nd edn, 2016) APP 3-2. The same Appendix suggests "protective orders" or "deidentification of data" as safeguarding measures.
319 *See* Section 3.4.2.1 of this research.
320 ICAO, *Annex 19 Safety Management* (2nd edn, 2016) APP 3-3.
321 *See* Section 2.3 of this research.

Some Contracting States of the Chicago Convention (1944) consider the principles of protection for safety data and information under ICAO Annex 19 as a "mandatory obligation."[322] These States advocate for restricting the scope of vertical transparency. Within the realm of this advocacy, the safety paradigm is the priority. In other states, the opposite is true. As explained in Chapter 2, the right-to-know and the right to information connected to vertical transparency are viewed as constitutional rights that may not be compromised.[323]

In navigating the complex relationship between vertical and horizontal transparency and safety in the context of ICAO Annex 19, I argue that ICAO does not always mean to absolutely prioritise safety over vertical transparency, especially considering the conditional legal force of SARPs.[324] Furthermore, prioritising principles of protection of safety data and information over vertical transparency contradicts the training materials of ICAO, acknowledging that ICAO cannot impose compromises with respect to vertical transparency.[325]

Thus, depending on the implementation of the relevant ICAO SARPs and the domestic guarantees for the accessibility of public information, the balance between vertical transparency and safety may vary across different States. Some give precedence to vertical transparency, while others prioritise safety. The approach taken by each State is influenced by various factors, including their legal frameworks, national policies, and overall aviation safety considerations.

Choices in different jurisdictions, both concerning vertical and horizontal transparency, can impact the legal certainty paradigm. When information is not passed on to either the public domain or the judicial arena, including that of criminal prosecution, 'violations' are not processed and assessed in either platform. The distinction between behaviours that should or should not lead to judicial action can be determined through the judicial process,

322 ICAO, *Assembly Working Paper A39-WP/110: Protection of Safety Information* (2016) 3. The States advocating the safety paradigm are: Argentina, Aruba, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela

323 *See* Section 2.3. and ICAO, *Supplement to Annex 13, Ninth Edition* (2003) as an example. 10 States notified that accident records under ICAO Annex 13 cannot be protected based on ICAO Annexes. Sometimes, protections would be granted by domestic criminal procedure law. However, the protection granted under criminal procedural law is still not in support of the paradigm of safety, *per se*. Rather, it is a protection of the accused from the public. More recent information could not be obtained.

324 *See* Section 1.5.2. on the legal force of SARPs and part of the analysis in the previous section on the special legal force granted to Attachment 3 of ICAO Annex 19, in this research.

325 ICAO Interstate Aviation Committee, *Safety culture workshop – Safety culture and safety information protection* (23-25 February, 2021).

whether in civil law claims initiated by citizens or in criminal prosecution. An atmosphere of strict non-disclosure will prevent norms from crystallising in this manner. For pilots, this means that it remains unclear and uncertain which types of behaviours, or 'violations', may lead, under which circumstances, to criminal prosecution.

3.4.3 Concluding remarks of Section 3.4

Section 3.4 seeks to explore SARPs relevant to the prosecution of pilots in order to further clarify prosecution duties under Article 12 of the Chicago Convention (1944). The analysis uncovered both complexity and relativity in pertinent substantive and procedural facets.

The Rules of the Air, as laid down in ICAO Annex 2, are especially relevant to the present research question because they emerge prominently in discussions with respect to the criminal liability of pilots and the safety paradigm. Annex 2 stipulates that the PIC bears a principal responsibility for the safe conduct of aircraft operations. For instance, the *final* decision for the safe operation of the aircraft rests with the PIC. If the safety of the aircraft is compromised due to the actions of a co-pilot, both the PIC and co-pilot may be subject to prosecution under Article 12 of the Chicago Convention (1944).

In determining the necessity of diversion from flight and manoeuvre rules, the PIC, and, in specific cases, co-pilots, bear ultimate responsibility, even if decisions are made in consultation with air traffic controllers. This scenario highlights a clash between the safety paradigm and the legal certainty paradigm, where the foreseeability of the crime may be low because of difficulties involved in the isolation of pilot criminal liability within a multiplicity of factors and (in)actions which may contribute to accidents and which can be linked to diverse actors.[326] The relatively low foreseeability of the possibly criminal conduct of the PIC is moreover caused by the fact that aviation is a *global undertaking*, implying that pilots fly their aircraft into and from many States in the world. Such States may or may not have implemented the relevant SARPs of ICAO Annex 2 and other ICAO Annexes, especially Annexes 6 and 11. All these States and their courts adjudicating the alleged criminal liability of a pilot may have different perceptions of violations and whether or not they constitute criminal acts.

Chapter 4 presents an analysis of selected jurisdictions illustrating this lack of legal certainty.

ICAO Annex 13 presents a clash of all paradigms engaged in this research. Accident and incident investigation under this Annex is primarily aimed

326 *See* Section 2.4 and Chapter 5.

at protecting against the occurrence of future accidents, aligning this goal with the safety paradigm. Unlike ICAO Annex 2, which may support the prosecution of pilots by detailing acts of pilots, Annex 13 expressly outlines the exclusive objective of technical investigations: *not* to apportion blame or establish criminal liability based on records collected from the technical investigation. These may be the most useful sources to define one's liability for judicial proceedings.

Non-disclosure and investigation separation, as promoted by this Annex, does not exclude prosecution, however. Depending on the implementation of the relevant Standards of ICAO Annex 13 and the criminal law of a particular State, courts may or may not have access to the records and data collected by the bureau responsible for conducting the technical investigation.

ICAO Annex 13 indicates the need for a balancing test to determine when the prosecution and resolution of a potential need for apportionment of blame is necessary. This test, introduced by ICAO Annex 13, seeks to balance various interests based on Just Culture, reflecting safety and transparency paradigms.[327] The evolution of the status of *specifications*, thus Standards and Recommended Practices, within ICAO Annex 13 contributes to the clarification of these objectives.[328] In the course of time, ICAO has understood that the safety paradigm cannot be maintained as the exclusive paradigm governing the actions of pilots and other aviation actors, which is why ICAO introduced the 'balancing test.' However, such balancing tests do not provide extensive clarity. Whether or not information can be shared remains an open issue.

Standards in ICAO Annex 13 are also not effectively implemented, while States also do not notify ICAO of their inability to do so. How information exchange is regulated and governed in diverse jurisdictions is thus not always clear.

Indeed, many States do not consistently separate judicial and technical investigations and/or do not synchronise these investigations in domestic regulations or protocols concluded between the concerned public authorities. All paradigms engaged in this research are impacted, as all are served by clear, accessible and globally applicable rules.

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327 *See* Section 3.4.2.1. in this research.

328 For example, sometimes an Attachment becomes Recommended Practice, which may eventually become a Standard. *See* Subsection on disclosure of records in Section 3.4.2.1. *See also* Griggs C, 'Just Culture and Accountability for Flight Safety Events in Australia and New Zealand' (2014) 79 Journal of Air Law and Commerce 441, 446.

Chapter 4 of this research is designed to illustrate how the norms laid down in the Chicago/ICAO regime unpack into national law in conjunction with domestic criminal laws.

ICAO Annex 19 came into being in 2013. It aligns with Just Culture, but it does not explicitly oppose the prosecution of pilots and other aviation actors.[329] The conditions for exceptions in ICAO Annex 19 remain consistent with Just Culture, even though this concept is not explicitly mentioned. At the same time, this Annex illustrates well how broad the potential may be for criminal prosecution of pilots in that it ultimately also allows for the disclosure of information, even in the absence of accidents and formal investigations.

3.5 Chapter Conclusion

This chapter tried to explain from a historical perspective how the basis for prosecution and criminal liability of pilots has been framed in the contemporary international legal framework governing international civil aviation. It also touched upon the intricate interactions between particularly the safety and transparency paradigms. The evolution of the international legal landscape for international civil aviation reflects a transformative journey. Originating in Paris in 1910, the concept of safety culture or safety management was absent in the nascent legal framework. In this period, emphasis was placed on compliance as a preventive measure against accidents, while prosecution and punishment served as a reactive mechanism. The confidence in these reactive and preventive mechanisms persisted during the conclusion of the Chicago Convention (1944).

The delicate relationship between Article 12 of the Chicago Convention (1944) and its Annexes is rooted in history. Channelling the spirit of the Paris Convention of 1919, Article 12 obliges the Contracting States of the Chicago Convention (1944) to ensure the prosecution of pilots for violations of flight and manoeuvre rules. However, the sophisticated language underlying Article 12 simultaneously regulates the permissible conduct of pilots, with a focus on only prosecuting violations causing "an immediate adverse impact against safety with some degree of intentionality."[330]

This chapter questions whether international civil aviation supports the administration of justice and how criticism against prosecution becomes manifest in the limitation of vertical transparency. ICAO Annex 13 Annex underscores that the primary objective of accident investigations is not criminal prosecution. This definition of the 'primary objective' has sparked

329 Section 3.4.2.2 of this research.
330 Section 3.3.1.6 of this research.

debates because of thresholds raised for the use of accident records to delineate and assign blame.

That said, Annex 13 has evolved. It now highlights the importance of safeguarding technical investigations while also recognising the pursuit of justice in the aftermath of accidents. The goal is to strike a balance between transparency and responsibility in order to serve the overarching objective of enhancing aviation safety.

Consequently, States hold the discretionary power to disclose accident investigation records to support criminal proceedings or for public disclosure, contingent on a meticulous evaluation and the balancing of interests. Moreover, States retain the option to conduct parallel investigations, in terms of technical and judicial procedures, for purposes beyond solely promoting safety. ICAO Annex 13 explicitly refrains from prohibiting the initiation of prosecution in the aftermath of accidents. The reluctant approach adopted in Annex 13 towards the institution of judicial proceedings involving the behaviour of pilots in the context of accident and incident investigation has been further mitigated by Annex 19, in which the concept of Just Culture has been incorporated, although not absolutely.

The current international legal framework does not contain a definitive and permanent solution to the existing dichotomy among paradigms. The dynamic nature of international civil aviation development makes the attainment of a definitive solution improbable. Nonetheless, ICAO operates as a global forum where States engage in discourse and collaboration to address safety concerns in international civil aviation. ICAO also endeavours to find a balance in paradigms. An exemplary manifestation of this collaboration is the establishment of a task force group dedicated to enhancing mechanisms supporting the implementation of Article 12.[331] While a conclusive resolution remains elusive, ongoing discussions and cooperative efforts within ICAO contribute to the continual improvement of the international legal framework, also aiming to clarify issues related to the criminal liability of pilots.

Finally, the exploration of the international legal framework shows that neither the Chicago Convention (1944) nor legal instruments drawn up and updated by ICAO impose restrictions on the prosecution of pilots and other aviation actors. Chapter 4 discusses States' practices pertaining to the prosecution and the establishment of criminal liability of pilots, as illustrated by the implementation of ICAO SARPs in the national regulations of the selected States, their criminal laws and other regulations, as interpreted in court cases.

331 *See,* ICAO, *Legal Committee Working Paper LC/38-WP/2: Legal Committee – 38th Session* (2022)

4 The impact of the domestic legal framework on the criminal liability of pilots

4.1 Introduction

This Chapter analyses the domestic law of selected jurisdictions regarding pilots' criminal liability. While ICAO lays down parameters for pilots' criminal liability by determining global air law principles, criminalisation at the national level must underlie prosecution. This chapter reviews the domestic criminal legislation of States that implement global air law parameters. At the same time, fundamental criminal law principles also come into play, including the substantive principle of legality and legal certainty as a postulate thereof.[1] Hence, pertinent domestic legal frameworks and the manner in which they are applied in case law will provide insights into clarity issues that may exist in the establishment of criminal liability for pilots in accident cases.

I select three jurisdictions, namely, the US, the UK, and the Republic of Korea (ROK). The selection criteria pertain to the geographical distribution, the active adherence of these jurisdictions to the Chicago/ICAO regime, and the availability of the most relevant case law.[2] The selection is especially meaningful for exploring the regulation of the criminal liability of pilots according to the interpretation made in Chapter 3 in the context of regimes of these jurisdictions. These States actively participate in the ICAO rulemaking process, as manifested by the fact that they have implemented 90%, if not more, of the ICAO SARPs.

Moreover, the selected States are important aviation States in terms of traffic volume, that of the selected jurisdictions covering about 29% of the world traffic volume.[3]

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1 Fletcher GP, *Basic Concepts of Criminal Law* (OUP 1998) 3 and Van Dam R, 'Preserving Safety in Aviation: "Just Culture" and the Administration of Justice' (2009) 22 Air and Space Lawyer 1, 6. *See also* Sections 1.1.2, 1.4.2, 1.6 and 2.3.

2 Section 1.3.2 of this research. The previous versions of this Chapter contained information on the domestic legislation of South Africa to fulfil the requirements of the geographical distribution and active adherence to the Chicago/ICAO regime. However, due to the lack of criminal prosecution cases, this (final) version of the Chapter does not contain South African cases.

3 World traffic history shows that the number of domestic and international flight departures of the US, UK, and Korea was 8.59M, 0.9M, and 0.34M out of 35.25M departures worldwide in 2023.

A preliminary consideration is that pertinent case law is generally limited. That limitation also applies to the selected jurisdictions. In the available case law, courts consider, besides the (in)actions of the pilot, other objective elements, such as technical defects in the aircraft, including avionics, or external factors such as weather conditions, the state of the airport, and instructions from Air Traffic Control, in conjunction with the subjective state of mind of the pilot when assessing accident and incident causes.

Next to legal sources defined in Chapter 1,[4] this chapter (4) presents analyses based on empirical sources showing the level of implementation of ICAO SARPs into the legal systems of the US, UK and Korea. Those are primarily statistics of each contracting State of the Chicago Convention (1944) and represent their responses to USOAP CMA self-assessment questions.[5] I retrieved these questions from ICAO's support tool for data-driven safety analysis, called 'iSTARS', provided by the Air Navigation Bureau of the ICAO, which allows States to test its implementation status,[6] and on ICAO's data services.[7]

In addition, the AIP is also a source of this Chapter (4). The AIPs are prepared by individual States and provide information on the differences between national law and ICAO SARPs, and procedures.[8]

The sections based on these AIP data are designed to check if and how each selected State fulfils its binding or conditional international obligations.[9] From all the Protocol Questions (PQs) available,[10] I extracted questions on the obligations under Articles 12 and 26 of the Chicago Convention (1944). The list of questions is included in the subsection on State Practice in Chapter 3.

4 Section 1.3.1.

5 *See* Section 3.3.1.7 of this research. State practice – what have States done to implement this "undertaking". ICAO supports its Member States to actively check their oversight capabilities by preparing 'self-assessment' questions. By answering numerous questions, Member States can determine whether they satisfactorily implement ICAO SARPs. The results are viewed on ICAO's API Data Service which is not always publicly accessible.

6 *See*, ICAO, 'iSTARS 4.0' <istars.icao.int> accessed 13 October 2024.

7 ICAO, 'API Data Service' <https://www.icao.int/Aviation-API-Data-Service/Pages/default.aspx> accessed 13 October 2024. ICAO explains its API data service: "ICAO's highly reliable Application Programming Interface (API) Data Service contains the raw data collected and processed from different aviation authorities, Member States, other international organizations and NGOs."

8 See, ICAO, *Annex 15 Aeronautical Information Services* (16th edn, 2018). The AIPs are updated either every 28 or 56 or 28 days.

9 Sections 1.4.1 and 3.4 of this research.

10 Protocol Questions are a primary means the ICAO USOAP CMA utilises for States to self-assess their oversight capabilities. For more, *see*, Chapters 1 and 3 on the continuous monitoring system of the State oversight capabilities of ICAO.

This Chapter will also define whether and how specific legal instruments, either criminal law or air law, or both, regulate the criminal liability of pilots. As stated above, prosecution requires a basis in national criminal law. Hence, in many cases, criminalisation is a combination of the two branches of law, that is, criminal law norms interpreted in the light of air law provisions and principles. Discussion of these legal norms is followed by a study of the application of the selected frameworks in practice and how the respective competent bodies enforce rules. I will also look into case law in the selected jurisdictions in order to respond to my research questions.[11]

While this study, where necessary, makes reference to classical criminal law concepts, such as subjective elements of offences, including diverse forms thereof in the form of intent, negligence and recklessness, this study does not intend to test the compatibility of aviation criminal law with any version of these concepts in any domestic jurisdiction.

This chapter concludes with reflections on the ways and means of domestic legislation dealing with pilots' criminal liability. I also address the question of whether and how the complex interactions between safety, transparency, and legal certainty are resolved therein.

4.2 The US regime

4.2.1 The position of the US in the Chicago Convention (1944) and ICAO

4.2.1.1 The Chicago Convention (1944)

The US was a principal driving force behind the conclusion of the Chicago Convention (1944), amongst others, by having initiated the invitations for the Chicago Conference.[12]

11 The case law referred to in each jurisdiction studied in this research is not exhaustive. There are still more significant cases and court decisions, yet they are irrelevant to this study. Each section of Chapter 4 with case law of jurisdictions contains those other cases omitted in this research, yet prominent. An additional point to mention here is that, in the jurisdictions referred to in this research, violations of flight and manoeuvre rules often lead to administrative sanctions, such as suspension of licenses, but not criminal liability. Such cases would be referred to in each section analysing case law.

12 *Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 11. *See also* Osterhout H, 'Review of the Recent Chicago International Air Conference' (1944) 31(2) Virginia Law Review 376, 376; Klang J, 'Celebrating the Chicago Convention's 75th Anniversary' 32(4) Air & Space Lawyer 1, 1.

The US was one of the initial signatory States on 7 December 1944. In 1946, the US Congress ratified the Chicago Convention (1944),[13] which came into force in 1947 in the US.

4.2.1.2 Practice regarding the implementation of ICAO SARPs with reference to the criminal liability of pilots

The most recent USOAP carried out by ICAO in the US is dated 2007. That examination showed the following results:

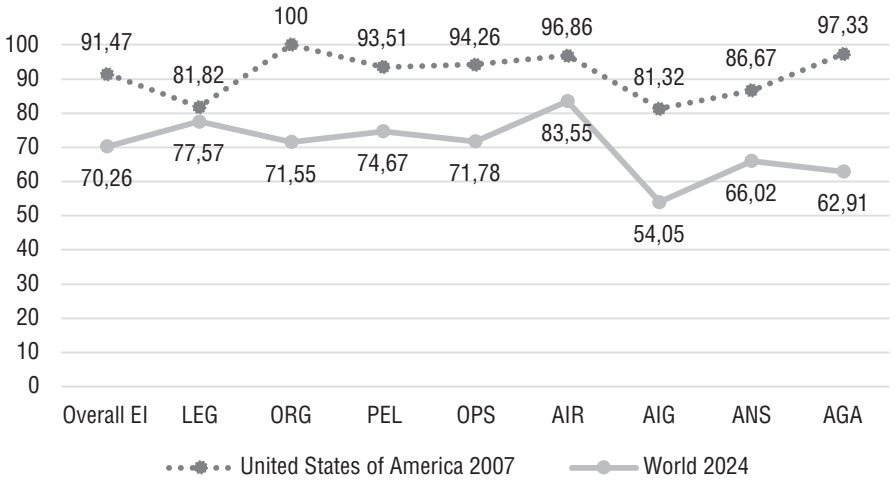

Figure 2 USOAP Result Comparison – The US v. Global Average (13 October 2024)[14]

As the Figure above shows, between 2007-2023, the US implemented about 90% of the *then-existing* SARPs. Thus, this study considers the US to be one of the leading States in implementing SARPs.[15]

The US has assessed that it has fulfilled almost all Article 12 of the Chicago Convention (1944) obligations, except for one aspect thereof. The US

13 Restatement (Fourth) of the Foreign Relations Law of the United States § 301 cmt. a (AM. L. INST. 2018) [hereinafter Fourth Statement], § 301 cmt. A. A comparable case is the Paris Convention (1919); the President signed the treaty, but Congress did not ratify it. *See* ' Status of the Treaties of the Conference' in *Papers Relating to the Foreign Relations of the United States, The Paris Peace Conference, 1919, Volume XIII* (United States Government Printing Office 1947); Cooper JC, 'United States Participation in Drafting Paris Convention 1919' 18 Journal of Air Law and Commerce 266, 266.

14 ICAO USOAP utilises the following abbreviations: EI (Effective Implementation), LEG (Primary Aviation Legislation and Civil Aviation Regulations), ORG (Civil Aviation Organization), PEL (Personnel Licensing and Training), OPS (Aircraft Operations), AIR (Airworthiness of Aircraft), AIG (Aircraft Accident and Incident Investigation), ANS (Air Navigation Services), AGA (Aerodromes and Ground Aids).

15 There is no more recent reference to the USOAP result of the US.

explained that it does not implement specific Air Navigation Service (ANS)-related provisions of SARPs,[16] having opted to post differences under ICAO Annexes 2 and 11. Not only have standards laid down in ICAO Annexes 2 and 11 been implemented differently in the US,[17] but the scope of US law is also more expansive than that of the standards of these ICAO Annexes.[18] Thus, it may be held that the US supports the safety paradigm through the implementation and application of more extensive provisions.

The fulfilment of obligations laid down in Article 26 of the Chicago Convention (1944) may be seen in light of Standards 5.4 and 5.12 of ICAO Annex 13.

As to Standard 5.4 of Annex 13 on the separation of investigations, the technical investigation is prioritised over any other inquiries in the US. The technical investigation authorities have unhampered access to the accident scenes, evidence, and witnesses without any delay.[19] Furthermore, the separation of investigations is also guaranteed in the US.[20]

Regarding Standard 5.12 of ICAO Annex 13 on the non-disclosure of accident investigation records, the US only partially fulfils these obligations.[21] On the one hand, US legislation provides "some protection" for private and medical information, including non-disclosure of the cockpit voice recordings and transcripts, while courts in the US can order the "disclosure" for purposes other than accident investigation.[22] To that extent, US law appears to support the safety paradigm partially.

On the other hand, parts of investigation reports are subject to public reporting in the US.[23] FAA regulations prescribe that "facts, circumstances, and probable cause of every civil aviation accident" are not *per se* excluded

16 Question 7.009 ANS CE—2: Has the State promulgated specific operating regulations to transpose the ANS-related provisions of Annexes 2, 3, 4, 5, 10, 11, 12, and 15?

17 The details and level of abstracts of the posted differences vary. For example, the differences may be the use of different terms, as seen in the definition of 'repetitive flight plan'. In the US, the term 'stored flight plan' is used for domestic operations instead of 'repetitive flight plan'. Or, additional requirements may be introduced. *See* the difference posted concerning Standard 3.2.5. of ICAO Annex 2 in FAA, 'Aeronautical Information Publication – AIP ' (Effective 20 April 2023) <https://www.faa.gov/air_traffic/publications/atpubs/aip_html/index.html> Annex 2.

18 *See*, FAA, 'Aeronautical Information Publication – AIP ' (Effective 21 March 2024) <https://www.faa.gov/air_traffic/publications/atpubs/aip_html/index.html> Annex 2.

19 Questions 6.021, 6.023, 6.025, and 6.327.

20 Question 6.401.

21 This paragraph is based on the provided information by the US government, which can be found at FAA, 'Aeronautical Information Publication – AIP ' (Effective 21 March 2024) <https://www.faa.gov/air_traffic/publications/atpubs/aip_html/index.html> Annex 13.

22 The AIP does not specify which courts can order the disclosure and relevant types of proceedings. See also, responses to the PQ 6.031 of the US.

23 *See*, FAA, 'Aeronautical Information Publication – AIP ' (Effective 21 March 2024) <https://www.faa.gov/air_traffic/publications/atpubs/aip_html/index.html> Annex 13.

from publication.[24] Draft final reports are also not protected from publication. From that perspective, it would seem that the US tries to find a balance between safety and transparency.

Moreover, the interest of the administration of justice can prevail over safety. As discussed in the next sections, US courts can order the disclosure of information that is, in principle, protected by ICAO Annex 13. If a US court orders such disclosure, the balancing test between safety and transparency may be conducted in favour of transparency.

Hence, the unequivocal endorsement of the predominance of the safety paradigm, beyond that of transparency in the US Federal jurisdiction,[25] remains to be determined on a case-by-case basis.

4.2.2 Federal legislative framework of the US

4.2.2.1 Introduction

The United States Code (USC) and the Code of Federal Regulations (CFR) regulate the conduct of pilots at the Federal level.

The USC governs crimes and procedures in Title 18 and transportation in Title 49.[26] Both titles are codifications of positive law, meaning that courts are obliged to apply these laws as a matter of the principle of legality. These two titles of the relevant USC are visited in Section 4.2.2. of this Chapter.

The CFR lists ICAO SARPs as implemented in the US through administrative regulation.[27] Whereas the CFR does not deal with the criminal liability of pilots, the USC specifies such liability. The relationship between the CFR and USC is discussed in Section 4.2.2.3.

The following sections deal with US federal law as they determine the scope of pilots' criminal liability. Hence, the regulations of US states are not considered in this work.

24 *See*, FAA, 'Aeronautical Information Publication – AIP ' (Effective 21 March 2024) <https://www.faa.gov/air_traffic/publications/atpubs/aip_html/index.html> Annex 13.

25 Chapter 2 of this research.

26 *See also* FAA, *Order 8020.11D – Aircraft Accident and Incident Notification, Investigation, and Reporting* (2018) 57. For an introduction to the US criminal justice system, please *see* Binder G, *The Oxford Introductions to US Law: Criminal Law* (Oxford University Press 2016).

27 Chapter 5 of this research.

4.2.2.2 General criminal law (Federal criminal law-Crimes and Criminal Procedures (Title 18))

Chapter 2 of Title 18 of the USC, hereafter referred to as 18 USC, is dedicated to aircraft-related crimes.[28] According to paragraph 32, perpetrators of wilful acts of setting a fire, causing damage, destroying, disabling, and wrecking an aircraft or aircraft facilities to "endanger the safety" of the aircraft coming under the jurisdiction of the US and also of civil aircraft used in, principally, "interstate, overseas, or foreign air commerce," are criminally liable.[29] Also, 18 USC paragraph 39B provides that unsafe operation of unmanned aircraft defines harming the safety of a passenger aircraft as an offence.[30] However, focusing on the actions of external actors, these crimes seem security-related rather than aircraft safety-related. Hence, Chapter 2 of 18 USC does not regulate the criminal liability of pilots operating aircraft according to the local flight and manoeuvre rules implemented in domestic law.

Chapter 17A of 18 USC shows a trace of international flight and manoeuvre rules. A passenger aircraft pilot for inter-state transport may be criminally liable for operating the aircraft under the influence of alcohol or psychoactive substances.[31] Relatively similarly worded as ICAO Annex 2 Standard 2.5 concerning problematic use of psychoactive substances, [32] paragraph 342 of 18 USC regulates the human performance referred to in ICAO Annex 2.[33] However, prohibition from operating an aircraft under the influence of alcohol or any other psychoactive substances applies to aircraft with passengers only. Therefore, this specific provision does not regulate pilots in general aviation flying without passengers.

Causing the death or injuries of passengers or persons on board may also constitute general Federal criminal law offences. For instance, 18 USC Chapter 51 regulates homicide, including murder or manslaughter.[34] Murder,

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28 18 USC Chapter 2. Next to aircraft, the mentioned Chapter 2 defines crimes regarding motor vehicles.

29 18 USC Chapter 2 §32 (a)(1). For the list of aircraft falling under the scope of the "special aircraft jurisdiction of the US," *see* 49 U.S. Code § 46501 (2). The list includes any civil aircraft, aircraft with an armed force of the US, and aircraft with unlawful interferences that are in flight.

30 However, in the context of this research focusing pilots in the cockpit, this offence may be less relevant.

31 18 USC Chapter 17A § 342.

32 Standard 2.5 of ICAO Annex 2: "No person whose function is critical to the safety of aviation (safety-sensitive personnel) shall undertake that function while under the influence of any psychoactive substance, by reason of which human performance is impaired. No such person shall engage in any kind of problematic use of substances."

33 Section 2.2.4.

34 18 USC Ch. 51 (1964)

as unlawful killing, involves malice,[35] and manslaughter does not require malice.[36] Therefore, the intent of the pilots at the moment of violations may be the key to determining whether pilots' conduct should be understood as murder or manslaughter. If a pilot's behaviour is identified as a lack of duty to care, it might be qualified as involuntary manslaughter.[37]

Moreover, even if no death occurs in an accident or no violations of *local* flight and manoeuvre rules can be determined, a pilot can still be prosecuted and punished under the abovementioned 18 USC, but only on the basis of security arguments constituting an external threat.[38] Such prosecution would namely be for criminal attempt, which would imply intent to cause the death of passengers on the part of the pilot.[39]

Beyond these potential bases for prosecution, provisions regarding crimes and procedures laid down in 18 USC barely operationalise the safety paradigm in the detailed manner in which ICAO Annex 13 envisages it.

From the perspective of legal certainty, clarity may be said to be reduced because the provisions on murder and manslaughter do not reflect aviation-specific actions for the safe navigation of aircraft. Particularly where subjective elements can be construed broadly, including as conscious risk-taking and offences can be construed as a failure to comply with duties of care, aviation violations may transpose into a criminal liability. Under what circumstances that can occur is not clear, however. An example is a deviation from the applicable flight and manoeuvre rules for safety reasons. Such deviation may cause the death of passengers or fellow crew members and make the conduct of pilots punishable under paragraph 32 of Chapter 2, 18 USC if a national judge were to determine that too great a risk was taken or the duties of care indicated alternative action.

4.2.2.3 Criminal air law (Federal aviation law)

- *Federal Aviation Administration (FAA)*

US Federal aviation law regulates the mandate and activities of the Federal Aviation Administration (FAA) and National Transportation Safety Board (NTSB), whereas Title 19, Chapter I, Part 122 of the CFR on Air Commerce serves as an administrative legal framework for the navigation and use of aircraft and the transportation of persons and cargo by aircraft in air commerce. In certain cases, the National Aeronautics and Space Administration

35 18 USC § 1111 – Murder.
36 18 USC § 1112 – Manslaughter.
37 18 USC § 1112 (a) – Manslaughter. *See also* the "non-aviation evaluation" explained in Chapter 3 of this research.
38 18 USC § 1113 – Attempt to commit murder or manslaughter
39 18 USC § 1113 – Attempt to commit murder or manslaughter

(NASA) may be involved as an independent third party in dealing with confidential incident reports.

Title 49 of the USC, hereinafter referred to as the 49 USC, governs US transport in general terms. The FAA supervises aviation,[40] and is subject to the authority of the Department of Transport.[41] Part A in Subtitle VII on Aviation Programs in 49 USC is dedicated to air commerce and safety. Among other provisions in Part A, Chapter 447, to which I refer as 'US Safety Regulation',[42] remains the core of the safety paradigm in the US.[43]

The US Safety Regulation contains flight and manoeuvre rules, as identified in Chapter 3 of this work, but not all of them.[44] They refer to tasks of the FAA in relation to violations, but not leading to the criminal prosecution. Violations are rather deeply discussed in Part 122 of the CFR and guidelines.[45] This is related to the main missions of the FAA. As a Federal agency which is responsible for civil aviation,[46] the FAA's primary mission is to support the safety paradigm.[47] Based on this mission, the FAA manages aviation safety by implementing SARPs, including flight and manoeuvre rules contained in ICAO Annexes, as "minimum standards."[48] This task also pertains to State oversight functions.[49] FAA functions include issuing licenses to the pilots and inspections, investigations, and surveillance to

40 49 USC § 106 – Federal Aviation Administration (g) on Duties and Powers of Administrator. This applies except for transportation, packaging, marking, or description of hazardous material. In the US term, aviation is called "air commerce." Air Commerce is defined as "foreign air commerce, interstate air commerce, the transportation of mail by aircraft, the operation of aircraft within the limits of a Federal airway, or the operation of aircraft that directly affects, or may endanger safety in, foreign or interstate air commerce." *See*, 49 USC § 40102(a)(3)

41 49 USC § 102 – Department of Transportation

42 The USC does not define "safety regulation," although the title of the referred chapter in 49 USC is "Safety Regulation".

43 49 USC Part A – Air Commerce and Safety. Next to this, 49 USC Ch 465 discusses aviation criminal law but against external threats. Therefore, this is a matter of aviation security connected to safety. *See* Section 1.7.

44 The US Safety Regulations are relevant for aircraft design, construction, and operation, on the one hand, and for the aircraft and airmen's certification, on the other hand. *See*, 49 USC § 44702, 49 USC § 44709

45 FAA, Airplane Flying Handbook, Chapters 9 and 10 at: Airplane Flying Handbook | Federal Aviation Administration (faa.gov)

46 Federal Aviation Act, P.L. 85-726, 72 Stat. 731. Approved 1958-08-23: "…to create a Federal Aviation Agency, to provide for the regulation and promotion of civil aviation…"

47 49 USC § 44701 – General requirements (a): "Promoting Safety. —The Administrator of the Federal Aviation Administration shall promote safe flight of civil aircraft in air commerce by prescribing…"

48 49 USC § 44701 – General requirements (a): "Promoting Safety. —The Administrator of the Federal Aviation Administration shall promote safe flight of civil aircraft in air commerce by prescribing…"

49 Section 3.3.1.3 of this research.

ensure compliance,[50] as its primary duties. The prescribed minimum standards are published not only in the US Safety Regulation but also in the form of the CFR.

The US Safety Regulation refers to criminal liability only under 18 USC, which is a Federal criminal law, and under 49 USC, which is an air law, or a combination of these two acts. Paragraph 46317 of 49 USC provides that "an individual shall be fined under Title 18 or imprisoned for not more than three years, or both," in case of knowingly and wilfully serving as a pilot without a pilot's license.

- *National Transportation Safety Board (NTSB)*

Next to the FAA, the NTSB, which is an independent investigation authority of the US that has been established pursuant to Standards 3.1 and 5.4 of ICAO Annex 13, is mandated to investigate the causes of accidents or incidents in accordance with the purpose of the prevention of future accidents. In this sense, the NTSB appears to be a strong supporter of the safety paradigm. Therefore, it does not address the criminal liability of pilots in its investigations.

The NTSB enjoys prior access to the accident investigation scenes.[51] However, when there is an indication of a criminal offence at the accident investigation scene,[52] the priority given to the NTSB becomes invalid.[53] In such circumstances, the NTSB is required to preserve the accident locations until the judicial investigation team arrives.[54] The CFR does not prohibit the NTSB from sharing facts or exchanging information with the judicial investigation.[55] However, no agency other than the NTSB is competent to determine the technical cause or contributing factors of accidents.[56] In this regard, the separation between the technical and judicial investigations stipulated under ICAO Annex 13 is ultimately respected in the US.

The relationship between the NTSB and the responsibility of judicial authorities also appears in provisions on the disclosure of information.[57] Chapter 11 of 49 USC protects cockpit recordings and transcripts from public disclosure and judicial proceedings.[58]

50 Section 3.3.1.3 of this research.
51 49 CFR 831.5(a)(3).
52 49 USC § 1131(a)(2)(B) and (C).
53 49 CFR 831.5 (a)(1).
54 FAA, *Order 8020.11D – Aircraft Accident and Incident Notification, Investigation, and Reporting* (2018) 27.
55 49 CFR 831.5 (a)(5).
56 49 CFR 831.5(b).
57 Standard 5.12 of ICAO Annex 13.
58 49 USC § 1114 (a)(1). Next to these two, trade secrets are also protected.

Except for cockpit recordings and transcripts thereof and other specified documents, 49 USC allows for the publication of records, information, or investigation submitted or received by the NTSB upon request.[59] Also, the NTSB may formulate safety recommendations referring to communication transcripts between pilots,[60] which would then be publicly disseminated as final accident reports. However, this does not mean these safety recommendations are admissible in court.

Despite provisions of the US FOIA,[61] the NTSB may withhold records if it is reasonably foreseeable that the disclosure would harm the interest of present and future technical investigations and if the relevant law prohibits it.[62] Therefore, the balancing test between the safety and transparency paradigms depends on the circumstances and context of the case at hand.

- *Codes of Federal Regulation (CFR) on Air Commerce*

Meanwhile, the CFR on Air Commerce prescribes US local flight and manoeuvre rules. Standards of ICAO Annexes 2 and 6 are implemented in the CFR Title 14 (14 CFR) Part 91. Part 91 refers to the Pilot-In-Command and pilots in general, the responsibility and authority of the PIC, careless or reckless operations, and protection of technical investigation reports.

14 CFR Section 91.3 attributes direct responsibility and final authority to the PIC. Such responsibility and authority are limited to the operation of the aircraft. This section is a direct reflection of Standard 2.1 of ICAO Annex 2.[63] Pursuant to this provision, the PIC, when in need of immediate action, is allowed to deviate from the US rules of the air, which are the local flight and manoeuvre rules. In that event, the PIC must notify the FAA in written form about the deviation, even if the violations may involve a careless or reckless operation. In an in-flight emergency requiring immediate action, the PIC may deviate from applicable safety rules to the extent required to meet that emergency.[64]

While 14 CFR Section 91.3. does not provide what conduct is considered a careless or reckless operation or an element constituting the mentioned operation, a guidance material of the FAA provides such. FAA does not only provide the list of acts that are considered as 'violations' but also provides

59 49 USC § 1114 (c)(1). Interestingly, in 1968, based on the 28 U.S. Code § 1732 on Records made in the regular course of business, photographic copies enacted in 1948, tape recordings were admissible to the court, at least for the use in civil suits. *See* Kennelly JH, *Litigation and Trial of Air Crash Cases*, vol II (1968) Ch8, 22 and Wood TC, 'Admissibility of Accident Reports Required by Federal Law' (1966) 18 Hastings Law Journal 181.

60 49 USC § 1114 (c)(3)

61 Section 2.4.3.1 of this research.

62 49 CFR 801.1(a), 49 CFR 801.2(a). Yet, many materials are openly shared on the public docket of the NTSB for safety research purposes.

63 Section 3.4.1.3 of this research.

64 14 CFR 91 § 91.3 (b)

that "careless and reckless" needs to be proven based on the condition that the related operation is "below the standard of care expected of a reasonable pilot in the same or similar circumstances (careless) or reflecting a gross disregard for or deliberate indifference to safety or a safety standard (reckless).[65] Yet, the burden of proof lies on the FAA.[66]

As soon as the report of the PIC is completed and if the information concerns "accidents or criminal offences," the FAA may not use it or information derived from it for enforcement purposes,[67] including for the purpose of preparing the imposition of civil sanctions or administrative actions such as the suspension of pilots' certificates. This rule is in line with Standard 5.12 of ICAO Annex 13. However, from this ground, it is not clear if the FAA can disclose such information to judicial authorities.

Pilots other than the PIC may also report events outside accidents, including their own violations, to NASA under the Aviation Safety Reporting Program (ASRP).[68] The FAA is not allowed to use reports submitted to NASA under the ASRP or information derived therefrom in any enforcement action except information concerning accidents or criminal offences, which are wholly excluded from the Program.[69] Nevertheless, sanctions are waived for "inadvertent and not deliberate" violations, violations unrelated to a criminal offence, actions that prove a lack of qualification for a certificate, and non-repetitive violations based on the prior five years' records.[70] Concurrently, there is other evidence which may be accepted as relevant to a prosecution. Digital flight data collected under the Flight Operations Quality (FOQA) Assurance Program can become evidence if a violation concerns "deliberate violations or a criminal offense."[71]

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65 FAA, 'FAA Compliance and Enforcement Program w/ Changes 1-11 (Order 2150. 3C w/ Changes 1-11)' (2018) 3-4.<https://employees.faa.gov/tools_resources/orders_notices/index.cfm/go/document.information/documentID/1034329> accessed 13 October 2024, 4.15 and 9-23.

66 FAA, 'FAA Compliance and Enforcement Program w/ Changes 1-11 (Order 2150. 3C w/ Changes 1-11)' (2018) 3-4.<https://employees.faa.gov/tools_resources/orders_notices/index.cfm/go/document.information/documentID/1034329> accessed 13 October 2024, 4.16.

67 14 CFR 91 § 91.25.

68 49 CFR 830. *See also*, NASA, 'NASA Aviation Safety Reporting System' <https://asrs.arc.nasa.gov/report/caveat.html?formType=general> accessed 13 October 2024.

69 14 CFR 91 § 91.25. See also, FAA, 'FAA Compliance and Enforcement Program w/ Changes 1-11 (Order 2150. 3C w/ Changes 1-11)' (2018) 3-4.<https://employees.faa.gov/tools_resources/orders_notices/index.cfm/go/document.information/documentID/1034329> accessed 13 October 2024.

70 FAA, 'FAA Compliance and Enforcement Program w/ Changes 1-11 (Order 2150. 3C w/ Changes 1-11)' (2018) 3-4.<https://employees.faa.gov/tools_resources/orders_notices/index.cfm/go/document.information/documentID/1034329> accessed 13 October 2024.

71 FAA, 'FAA Compliance and Enforcement Program w/ Changes 1-11 (Order 2150. 3C w/ Changes 1-11)' (2018) 3-4.<https://employees.faa.gov/tools_resources/orders_notices/index.cfm/go/document.information/documentID/1034329> accessed 13 October 2024, 4-35.

However, there are also criminal conducts that can lead to criminal investigations. FAA refers to the "controlled substance violations" or illegal manufacturing, falsification or unauthorised reproduction of an aircraft component as criminal conduct in 49 USC.[72] Then, the FAA investigation intersects with criminal investigations, which means a concurrent investigation.[73] Sometimes, judicial authorities request the FAA to assist in criminal investigations, and criminal investigations may be prioritised over the enforcement of the FAA.[74]

Although it is out of the scope of this study because it relates to a military case, one study from 1988 provides an interesting perspective on the disclosure of records in the context of US military aviation.[75] The court in question states the following:

> *"We agree with the Government that when disclosure of investigative reports obtained in large part through promises of confidentiality would hamper the efficient operation of an important Government program and perhaps even, as the Secretary here claims, impair the national security by weakening a branch of the military, the reports should be considered privileged."*[76]

Considering horizontal transparency,[77] the court exempted the technical investigation reports designed to prevent accidents, implying that the record was not publicly disclosed. However, the court did use the other investigation report, which had been prepared to impose administrative sanctions against personnel.[78] The report was declared admissible as evidence. This leaves room for the same to happen in the criminal prosecution of a pilot.

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72 FAA, 'FAA Compliance and Enforcement Program w/ Changes 1-11 (Order 2150. 3C w/ Changes 1-11)' (2018) 3-4.<https://employees.faa.gov/tools_resources/orders_notices/index.cfm/go/document.information/documentID/1034329> accessed 13 October 2024, 4-41.

73 FAA, 'FAA Compliance and Enforcement Program w/ Changes 1-11 (Order 2150. 3C w/ Changes 1-11)' (2018) 3-4.<https://employees.faa.gov/tools_resources/orders_notices/index.cfm/go/document.information/documentID/1034329> accessed 13 October 2024, 4-41 and 9-9

74 FAA, 'FAA Compliance and Enforcement Program w/ Changes 1-11 (Order 2150. 3C w/ Changes 1-11)' (2018) 3-4.<https://employees.faa.gov/tools_resources/orders_notices/index.cfm/go/document.information/documentID/1034329> accessed 13 October 2024, 4-41 and 4-42.

75 *See,* Stevens BM, 'Military Aviation Mishaps: The Right to Know under the Freedom of Information Act v. The Need for Safety Privilege' (1988) 16(1) Western State University Law Review 287.

76 Cooper v. Department of Navy of United States, 558 F.2d 274 (5th Cir. 1977).

77 This report was created to prevent the accidents. *See*, Hayes SS, 'The Freedom of Information Act in Air Crash Discovery: Friend or Foe' (1986) 52 Journal of Air Law and Commerce 479, 495.

78 *See*, Hayes SS, 'The Freedom of Information Act in Air Crash Discovery: Friend or Foe' (1986) 52 Journal of Air Law and Commerce 479, 494: "The purpose of the JAGIR is the factual documentation of all matters pertaining to the accident which may serve as a basis for legal or administrative action. Id. This investigation is independent of all others and is primarily concerned with assessing property damage and unearthing possible negligence and neglect of duty."

4.2.3 Enforcement

The Criminal Division of the US Department of Justice supervises "all Federal criminal laws."[79] US Attorneys represent the Federal government in criminal cases in the relevant district.[80] Therefore, criminal prosecution of pilots falls under the duties of the US Attorneys.[81]

The Attorney General may also be involved in the investigation of aviation-related accidents. Under its authority to appoint Federal Bureau of Investigation's officials to "detect and prosecute crimes" against the US,[82] in consultation with the Chairman of the NTSB, the Attorney General may have priority access to the accident cases for criminal investigations.[83]

4.2.4 Case Law[84]

4.2.4.1 United States v. Eddie E. Webber (1963)[85]

On 12 April 1961, airman Webber was charged with the wrongful appropriation of an aircraft and violation of Air Force Regulations by taxiing onto the runway without clearance, taking off without clearance, and operating the aircraft with fewer crew members than required by law. Although this case was based on the Air Force Regulation,[86] the judges reviewed the case referencing US rules of the air.

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79 The US Department of Justice, *Justice Manual* <https://www.justice.gov/jm/justice-manual> 9-1.000 – Department of Justice Policy and Responsibilities.

80 28 USC § 547 and *see also* 28 USC § 541 (a).

81 *See also*, The US Department of Justice, *Justice Manual*, Title 9 Criminal, 9-2.000 and 9-2.030 <https://www.justice.gov/jm/jm-9-2000-authority-us-attorney-criminal-division-mattersprior-approvals#9-2.030> accessed 13 October 2024.

82 28 USC §533.

83 Section 4.2.2.3 of this research.

84 There have been more extensive discussions on the use of technical accident investigation reports in the US. *See Chiron Corp. v. National Transp. Safety Bd.*, 198 F.3d 935 (D.C. Cir. 1999), Janicki WD, 'Aircraft Accident Reports and Other Government Documents: Evidentiary Use in International Air Crash Litigation in the United States' (2009) 74 Journal of Air Law and Commerce 801, and Rosa JD, 'Federal Accident Investigations: Civil Litigation Viewpoint' (2018) 83 Journal of Air Law and Commerce 561. For cases that are dealt with administratively, *see* Chirino v. NTSB, 270 U.S. App. D.C. 396, 849 F.2d 1525 (1988), Johnson v. NTSB, 979 F.2d 618 (1992), and Coghlan v. NTSB, 470 F.3d 1300 (2006).

85 United States, Appellant v. Eddie E. Webber, Airman Third Class, U. S. Air Force, Appellee – 13 USCMA 538, 33 CMR 68. (No. 16,384 March 15, 1963). This case is not about international civil aviation since the aircraft was a military pilot. However, this judgment shows the applicability of US local flight and manoeuvre rules.

86 Air Force Regulation 60-16 of 1961. *See also*, McCuistion B, 'Publicize the Violator' (1948) 4 *Flying Safety* 8, 9: "On the cases discussed above, you will notice that the most frequent violations are of Air Force Regulations 60-16, 60- l 6A. Air Force Regulation 60-16 covers just about everything a pilot should know in regard to flying, and it believes all pilots to be aware of its contents."

The judgment confirmed that there is no regulation specifically criminalising the actions of the military pilot, taxiing on an active runway, taking off without clearance under US law, and operating the aircraft with fewer crew members. The court referred to the USC on the responsibility of the FAA personnel concerning ensuring aircraft safety and applicable penalties. These sections do not criminalise the actions of the pilot in question.[87]

The court held the following:

> "*Certainly, it is not good practice; and perhaps under some circumstances, it may constitute such gross disregard for the safety of persons or other aircraft as to be criminal. Perhaps all of accused's acts constitute departures from common sense rules of air traffic, but in the absence of statute or regulation and injury to persons or property, it is not criminal to fail to exercise the degree of care a reasonable person in like circumstances should exercise.*"[88]

The court reaffirms the *legal certainty* paradigm because no one can be criminally liable without an underlying law defining a crime and punishment. Without an adequate legal framework, it was only a matter of presumption to claim that wrongful behaviour and bad practices, as opposed to "good practice," are crimes. [89] It appears that the safety paradigm was not given significant weight by the court.[90]

4.2.4.2 Gol aircraft mid-air crash (2006)[91]

Airmen Lepore and Paladino flew an Embraer executive jet on 29 September 2006. Tragically, this jet collided mid-air with a Boeing 737 with 154

87 The court refers to 49 USC §§1348(c), (d), 1471(a)(1) supplemented by 14 CFR Section 60.18 as a potentially supporting rule. 49 USC §§1348(c), (d), is revised by 49 USC §§ 40103 (b)(1) and (b)(4) Sovereignty and use of airspace. 49 USC §1155 on penalties under the FAA. The Court added that these provisions are supported by 14 CFR 60.18., which no longer exists. See also, Easton JF and Mayer W, 'The Rights of Parties and Civil Litigants in an NTSB Investigation' (2003) 68(2) Journal of Air Law and Commerce 205.

88 United States, Appellant v. Eddie E. Webber, Airman Third Class, U. S. Air Force, Appellee – 13 USCMA 538, 33 CMR 68. (No. 16,384 March 15, 1963), 538. While the analysis is based on the document copy of the case, the review opinion can be retrieved openly at <https://www.courtlistener.com/opinion/8596205/united-states-v-webber/> accessed 13 October 2024.

89 United States, Appellant v. Eddie E. Webber, Airman Third Class, U. S. Air Force, Appellee – 13 USCMA 538, 33 CMR 68. (No. 16,384 March 15, 1963), 538.

90 The court also reviewed a question on 'wrongful appropriation,' but the discussion was less relevant for the current study. As to 'wrongful appropriation,' there is a provision that criminalises the conduct. However, the review discussed whether there was a ground to maximise the penalty because the appropriation took place to an aircraft.

91 The competent authorities of Brazil started criminal prosecution against pilots and air traffic controllers. Only partial records of the case are available. However, this Section in the study still contains the particular analysis of the US jurisdiction because this accident raised a distinctive dispute between the US and Brazil based on Article 12 of the Chicago Convention (1944). This dispute initiated the creation of a task force group of ICAO, which is still active at the time of writing of this Chapter.

persons on board.[92] The accident resulted in the fatalities of everyone on board the aircraft of Boeing 737 of Gol Transportes Aeros Flight 1907.[93] The passengers of the Embraer Legacy 600 survived the collision.[94] The accident brought a technical investigation and complex proceedings, which included not only litigation concerning compensation of damages in various courts but also criminal proceedings in two jurisdictions,[95] the US and Brazil.

Foremost, the Brazilian investigation board took the lead in the technical investigation.[96] This authority analysed whether human factors, operational aspects, and/or medical factors had influenced the cause of the accident. While the report concludes that no medical factors had contributed to the accident, it found human and operational factors, which resulted in the designation of blame on the pilots of the jet.[97] The report states the following:

> "*Relatively to the crew of the N600XL* [the GOL aircraft] *the following active failures were identified: lack of adequate planning of the flight, and insufficient knowledge of the flight plan prepared by the Embraer operator; non-execution of a briefing prior to departure; unintentional change of the transponder setting, failure in prioritizing attention; failure in perceiving that the transponder was not transmitting; delay in recognizing the problem of communication with the air traffic control unit; and non-compliance with the procedures prescribed for communications failure.*"[98]

As a corollary, the investigation board expanded its investigation to include legal analyses focussing on the behaviour of the jet's pilots. The board scrutinised this point under US law in its technical investigation, including in relation to the conditions for licensing jet pilots.[99] The structure of the legal analysis consists of sections of US Federal law regarding the pilots' position, the aircraft's navigation, and the flight causing the accident.

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92 *See* Command of Aeronautics General, Final Report A-00X/CENIPA/2008 (29 September 2006) (29 September 2006) (2008)

93 Command of Aeronautics General, Final Report A-00X/CENIPA/2008 (29 September 2006) (29 September 2006) (2008) 21.

94 Command of Aeronautics General, Final Report A-00X/CENIPA/2008 (29 September 2006) (29 September 2006) (2008)22.

95 In re Air Crash Near Peixoto De Azeveda, Brazil, 574 F. Supp. 2d 272 (E.D.N.Y. 2008) 275 and 277.

96 Other investigation authorities and industrial bodies, such as the NTSB, FAA, the Transportation Safety Board of Canada, Embraer, ExcelAire, Honeywell, and ACSS, supported the investigation. *See* In re Air Crash Near Peixoto De Azeveda, Brazil, 574 F. Supp. 2d 272 (E.D.N.Y. 2008) paras 4-5 and Command of Aeronautics General, Final Report A-00X/CENIPA/2008 (29 September 2006) (29 September 2006) (2008) 32.

97 As to the pilots to PR-GTD, the report stated that: "Neither active failures were identified in relation to the crew, nor latent failures in relation to the organizational system of the company." *See*, Command of Aeronautics General, Final Report A-00X/CENIPA/2008 (29 September 2006) (29 September 2006) (2008)258.

98 Command of Aeronautics General, Final Report A-00X/CENIPA/2008 (29 September 2006) (29 September 2006) (2008) 258.

99 Command of Aeronautics General, Final Report A-00X/CENIPA/2008 (29 September 2006) (29 September 2006) (2008) 66.

Looking at the flight rules of 14 CFR Part 91,[100] the investigation authority had concluded that the persons in question were qualified pilots according to 14 CFR Part 61 with the flight operating under the instrument flight rules.[101] The report also states that the pilots were competent.[102] Two points were particularly relevant:

Firstly, because the accident occurred in the territory of Brazil, the rules of the air for the pilots of the American jet must or should have been flown in compliance with the Brazilian rules of the air.[103]

Secondly, the report does not mention whether the errors led to the finding of reckless or negligent operation of the aircraft. Interestingly, none of the human errors as found to be the contributing cause of the accident were even considered violations of relevant procedures or rules.[104]

One day before the final report of the investigation was released,[105] the Brazilian authorities prosecuted the US pilots of the Embraer jet,[106] charging them with "violating Article 261, § 3, in conjunction with Article 263 of the

100 14 CFR Part 91 – "General Operating and Flight Rules". *See also*, Command of Aeronautics General, Final Report A-00X/CENIPA/2008 (29 September 2006) (29 September 2006) (2008) 66.

101 Command of Aeronautics General, Final Report A-00X/CENIPA/2008 (29 September 2006) (29 September 2006) (2008) 68. See also, Section 3.4.1.3.

102 Command of Aeronautics General, Final Report A-00X/CENIPA/2008 (29 September 2006) (29 September 2006) (2008) 76: "The pilots were experienced, certified as ATP, possessed a significant number of flight hours, were in good health and had prestige in the company, had already flown other high performance aircraft and were motivated."

103 Command of Aeronautics General, Final Report A-00X/CENIPA/2008 (29 September 2006) (29 September 2006) (2008) 67 and 68: "The newly delivered airplane, already with the 'N600XL' American registration, was flying between two Brazilian airports, with a planned navigation of 2 (two) airways of the national airspace. Therefore, the flight of the aforementioned aircraft is considered as a flight of the General Aviation, under the rules set in the RBHA 91 – 'REGRAS GERAIS DE OPERAÇÃO PARA AERONAVES CIVIS', which is almost totally similar to the 14 CFR Part 91 – 'GENERAL OPERATING AND FLIGHT RULES'."

104 Command of Aeronautics General, Final Report A-00X/CENIPA/2008 (29 September 2006) (29 September 2006) (2008) 194 and Annex: "The flight crew of N600XL, although not in violation of any regulations, was not aware of the loss of transponder and collision avoidance functionality, lack of ATC communication, and the flight's progress reference altitude convention. The team agrees that safety lessons in these areas can be determined to better prepare flight crews for international operations. "

105 The judicial authorities were involved from the beginning of the investigation. *See* Command of Aeronautics General, Final Report A-00X/CENIPA/2008 (29 September 2006) (2008) 240: "The authorities responsible for the judicial processes aiming at the verification of the criminal liabilities requested all the material gathered by this commission until then, when two months had elapsed after the accident. For this reason, the attorneys representing the controllers instructed their clients not to give any declarations, even after it was exhaustively explained that the purpose was to prevent the occurrence of further accidents."

106 In re Air Crash Near Peixoto De Azeveda, Brazil, 574 F. Supp. 2d 272 (E.D.N.Y. 2008) 283

Brazilian Penal Code."[107] Article 261 of the Brazilian Penal Code applies to the endangerment of maritime, river or air transport safety. With paragraph 3, if the endangerment occurs due to a fault, the penalty of detention from six months to two years applies. Article 263 states that if the endangerment results in harm or death of a person, an additional penalty applies under Article 258 of the Brazilian Penal Code.[108] The pilots, who were convicted, denied "any wrongdoing," claiming that the equipment supporting their instrumental flight was never turned on and, hence, they could not have done better.[109] However, in appeal, the Brazilian court upheld the convictions.[110] Besides the pilots, an air traffic controller was convicted with the penalty to carry out community service while a temporary ban on carrying out relevant professional duties. .[111] In addition, a military lawsuit was filed against the controller.[112]

Seven years after the accident, Brazil requested ICAO to interpret Article 12 of the Chicago Convention (1944). Brazil claimed that the US did not fulfil its obligation to ensure the prosecution of the airline personnel having violated Standard 3.1.1 of ICAO Annex 2,[113] by not adopting enforcement action, even while the Brazilian authorities, interpreting the international rules of the air as implemented in Brazilian legislation, had found the US pilots guilty and convicted them according to Brazilian law. Subsequently, the Brazilian authorities contended that the decision of the US government not to proceed with any enforcement action should be considered a breach

107 Supreme Federal Court of Brazil, HC 105301 MC / MT – Mato Grosso Precautionary Measure in Habeas Corpus (Judgment 31 August 2010).

108 *See*, Brazilian Penal Code of 1940, art 261: *"Atentado contra a segurança de transporte marítimo, fluvial ou aéreo – Expor a perigo embarcação ou aeronave, própria ou alheia, ou praticar qualquer ato tendente a impedir ou dificultar navegação marítima, fluvial ou aérea; § 3º : "Modalidade culposa – No caso de culpa, se ocorre o sinistro: Pena – detenção, de seis meses a dois anos. Modalidade culposa"; and "Forma qualificada – art 263 – Se de qualquer dos crimes previstos nos arts. 260 a 262, no caso de desastre ou sinistro, resulta lesão corporal ou morte, aplica-se o disposto no art. 258."*

109 Reuter, 'Brazil Upholds U.S. Pilots' Conventions in 2006 Air Disaster' (2012) <https://www.reuters.com/article/us-brazil-crash-retrial-idUSBRE89F03C20121016> accessed 13 October 2024.

110 Reuter, 'Brazil Upholds U.S. Pilots' Convictions in 2006 Air Disaster' (2012) <https://www.reuters.com/article/us-brazil-crash-retrial-idUSBRE89F03C20121016> accessed 13 October 2024.

111 Aeroflap, 'Flight 1907: 14 years after the GOL accident, what has changed since then?' (2023) <https://www.aeroflap.com.br/en/voo-1907-gol/> accessed 13 October 2024.

112 Supreme Federal Court of Brazil, HC 105301 MC / MT – Mato Grosso Precautionary Measure in Habeas Corpus (Judgment 31 August 2010). The air traffic controller was sentenced to one year and two months in prison.

113 ICAO, *Council Minutes C-Min 211/9 – Summary Minutes of the Ninth Meeting* (2017) 4 and 9. *See also* Section 3.4.1.3 of Chapter 3 analysing Standard 3.1.1 of Annex 2: "An aircraft shall not be operated in a negligent or reckless manner so as to endanger life or property of others."

of a treaty obligation.[114] The US government did not substantively counter-argue against the criminal liability of pilots as it held that it had been too long since the occurrence of the accident.[115]

Although the application raised significant questions as to the interpretation of Article 12, the different approaches adopted by Brazil and the US regarding the prosecution of the pilots and enforcement of the Brazilian convictions did not yield a concrete conclusion. Instead, both States agreed to form a task force group designed to create a communication mechanism and draw up guidelines for the implementation of Article 12 of the Chicago Convention (1944).[116] The task force group work is still ongoing.[117]

This case demonstrates the sheer complexity of determining whether the pilots acted in contravention of the criminal law of the State of occurrence, that is, the State where the accident happened, in this case, Brazil, and the State which issued the pilot licenses, in this case, on the side of the Embraer aircraft, the US. Both aircraft, including instruments to navigate these aircraft (avionics), were manufactured in the US. While the Brazilian and US investigation bureaus agreed on many points, they disagreed on others. The Brazilian (CENIPA) report concludes that the accident was caused by mistakes made both by air traffic control (ATC) and the Embraer pilots, whereas the NTSB report focuses on the air traffic controllers, concluding that both flight crews acted properly but were placed on a collision course by the ATC.[118]

4.2.4.3 United States v. Cope (2012)[119]

On 8 December 2009, airman Cope, who served as the co-pilot and the first officer of United Express Flight 7686, flew from Austin, Texas, to Denver,

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114 ICAO, *Council Minutes C-Min 211/9 – Summary Minutes of the Ninth Meeting* (2017) 10.

115 ICAO, *Council Minutes C-Min 211/9 – Summary Minutes of the Ninth Meeting* (2017) 4-9.

116 ICAO, *Assembly Working Paper A40-WP/101: Article 12 of the Chicago Convention: Communication Mechanism and Guidelines to Support Its Implementation* (2019), ICAO, *A39-WP/251 – Common Guidelines on Article 12 of Chicago Convention Enforcement of Violations Committed by Foreign Air Carriers (Presented by Brazil)* (2016), ICAO, *Legal Committee Working Paper LC/38-WP/3-1: Review of the General Work Programme of the Legal Committee* (2022), and ICAO, *Legal Committee Working Paper LC/38-WP/7-2: 75th Anniversary of the Legal Committee of the International Civil Aviation Organization* (2022).

117 Status of August 2024: The report of the task force group was expected to be published in the subsequent session of the ICAO, which is June 2024. In the session of June, the Legal Committee reported that the task force group continues to scope the application of Article 12 and to develop a web-based tool for better communication among States. See, ICAO, *Assembly Working Paper LC/41-WP/53: Work Programme of the Organization in the Legal Field* (2022) 4. And ICAO, *Legal Committee Working Paper LC/39-WP2-1: Consideration of Other Items on the General Work Programme of the Legal Committee* (2024) 2.

118 *See*, Lacagnina M, 'Midair over the Amazon' in *AeroSafety World* (February 2009) 11

119 United States v. Cope, 676 F.3d 1219 (2012) [*United States v. Cope*]

Colorado, under the influence of alcohol. The captain of the flight, Mr Obodzinski, testified that the night before the flight, he saw that Mr Cope did not seem well. On the day of the flight, Mr Obodzinski noticed the smell of alcohol in the cockpit and concluded that Mr Cope was the source of the scent. After completing the flight, Mr Obodzinski delayed the next leg and communicated with the chief pilot and human resources officer of the airline. He took Mr Cope to the breath analyser testing facility, where Mr Cope was found to be under the influence of alcohol. Mr. Cope was prosecuted and convicted based on 18 USC §342, which criminalises the operation of aircraft under the influence of alcohol.[120]

However, Mr. Cope argued that under the relevant FAA regulation, Title 14 CFR Section 91.17, prohibiting acting or attempting to act as a crew member of a civil aircraft under the influence of alcohol,[121] he should not be convicted. This is because the FAA is not an enforcement body of criminal law.[122] Also, the violation of this FAA regulation could not lead to prosecution because violation of the FAA rules does not constitute a crime since the FAA regulation is administrative legislation.[123]

The relevant court confirmed that his action was not a crime under CFR Title 14 Section 91.17. In this respect, the court argued that non-criminal forms of liability do not automatically lead to criminal liability, citing another case that provides "although the evidence concerning a civil violation may be used to prove knowledge or intent."[124] Instead of the administrative violation, the court held Mr Cope criminally liable based on the testimony of other crew members and breath analyser test results as evidence to find him guilty of being under the influence of alcohol under 18 USC 342.[125]This case shows that the violation of the US' local flight and manoeuvre rules may not be considered a criminal offence.[126]

4.2.4.4 United States v. Fitzgerald (2018)[127]

On August 25, 2016, Captain Fitzgerald of Talon Air, Traverse City, Michigan, was in the process of preparing a flight while intoxicated. Mr. Fitzgerald's co-pilot recognised his inebriation and alerted Talon Air executives, who contacted law enforcement. Subsequently, Mr. Fitzgerald was arrested

120 "Whoever operates or directs the operation of a common carrier while under the influence of alcohol or any controlled substance (as defined in section 102 of the Controlled Substances Act (21 U.S.C. 802)), shall be imprisoned not more than fifteen years or fined under this title, or both."
121 Title 14 CFR Section 91.17 (a), §(2).
122 Sections 4.2.2.3 and 4.2.3 of this research.
123 *United States v. Cope*, §1229.
124 *See* Prouse (945 F.2d), 1024 and United States v. Hilliard (31 F.3d 1509, 10th Cir. 1994), 1516.
125 Pursuant to the above quoted provisions of 18 USC §342.
126 14 CFR Chapter I Subchapter F – Air Traffic and General Operating Rules (Parts 91 – 108-109)
127 *United States v. Fitzgerald*, 906 F.3d 437 (6th Cir. 2018) [*United States v. Fitzgerald*]

and charged under 18 USC §342 for operating a common carrier while intoxicated.[128] He was convicted by a jury and received a sentence of one year and one day in prison, with three years of supervised release.[129] While this case seems similar to the one of Cope above, the question of whether the violation of the administrative rule of 14 CFR 91.17 qualified as a criminal offence was not a concern. Fitzgerald appealed, contesting the definition of "operate" under 18 USC §342, the correctness of jury instructions, and alleged errors during sentencing.

The central issue concerned the interpretation of the term "operation" of an aircraft in 18 USC §342,[130] instead of the violation of the relevant CFR being an administrative rule. Fitzgerald argued for a limited interpretation of 18 USC §342, restricting it to actions in which passengers were aboard, or the engines were turned on rather than the preflight actions in which he was engaged.[131] In contrast, the government advocated for a broader interpretation encompassing pre-flight activities.[132] According to Fitzgerald, the charge was not foreseeable under the legal certainty paradigm. The district court instructed the jury that "operate" contained actions directly linked to the operational requirements of the flight, regardless of passenger presence or whether or not the aircraft was in motion.[133]

The US Court of Appeals for the Sixth Circuit upheld Fitzgerald's conviction, emphasising that this interpretation aligned with practicality and the statute's primary goals. The first goal of the law is to protect passengers by deterring intoxicated pilots from operating the aircraft,[134] that is aviation safety.[135] Practically, Mr Fitzgerald had control over the aircraft for an hour,[136] meaning he had operated the aircraft.[137] Clearly, as a reasonable person, Mr. Fitzgerald had "fair notice that he was acting illegally" as a consequence of his state of health.[138]

According to the court, in aviation cases, the interpretation of a technical term like "operation" in the 18 USC should reflect the technical practical-

128 *United States v. Fitzgerald*, §441.
129 *United States v. Fitzgerald*, §§441-442.
130 *United States v. Fitzgerald*, §442.
131 *United States v. Fitzgerald*, §442.
132 *United States v. Fitzgerald*, §442.
133 *United States v. Fitzgerald*, §445.
134 *United States v. Fitzgerald*, §447.
135 *United States v. Fitzgerald*, §448.
136 *United States v. Fitzgerald*, §449: "…Fitzgerald manipulated several of the airplane's controls for nearly an hour, turning on the auxiliary power unit, calibrating the altitude-measuring device, programming the flight-management system, and communicating with air-traffic control. Any one of these actions alone might have provided sufficient evidence of operation."
137 Such interpretation also fits the definition of aviation safety contained in ICAO Annex 19. *See* Section 1.7.1 of this research.
138 *United States v. Fitzgerald*, §448.

ity of aviation and the purpose of the law, that is, the protection of safety. Although the interpretation may be broader than the pilot in question understood, the safety paradigm, which aims to prohibit unsafe pilot behaviour, seems to have prevailed, albeit causing some tension with the legal certainty paradigm.

4.2.5 Concluding remarks of Section 4.2

Pursuant to the legal framework of the US, pilots may be prosecuted in the US based on Federal common criminal law and specific aviation law provisions. However, due to the nature of US technical regulations in aviation, namely, the CFR being administrative legislation, the prosecution of pilots based on (only) violations of the relevant CFR, that is, the local flight and manoeuvre rules, may be hindered if those rules are not also covered by criminal law.

In the US, the safety paradigm appears to occupy a prominent position in legislation, especially in aviation legislation, and receives principal attention in case law. Other paradigms, that is, legality and transparency, are also relevant and are referred to. How these paradigms unpack in concrete cases lies significantly, besides in the facts and circumstances, within the discretion of courts, while outcomes can vary significantly. The absence of substantial case law also impedes the gradual clarification of the delineation of criminal liability in this respect.

4.3 The UK regime

4.3.1 The participation of the UK at the Conference preparing the Chicago Convention (1944) and in the ICAO

4.3.1.1 The Chicago Convention (1944)

The UK was one of the initial signatories of the Chicago Convention (1944).[139] In 1947, the UK also ratified the Chicago Convention (1944) on behalf of its Crown Dependencies and Overseas Territories.[140] The Chicago Convention (1944) came into force for the UK in 1947.[141]

139 *See Proceedings of the International Civil Aviation Conference* (United States Government Printing Office 1948) 118. *See also*, US Department of State, 'Depository – Treaty Affairs – 01 Convention on International Civil Aviation, done at Chicago December 7, 1944.' (2019) <https://www.state.gov/convention-on-international-civil-aviation-chicago> accessed 13 October 2024.

140 Foreign, Commonwealth & Development Office of the UK, 'UK Treaties Online – Convention on International Civil Aviation' <https://treaties.fcdo.gov.uk/responsive/app/consolidatedSearch/#search/v=list,c=1,q=qs%3D%5Bconvention%20on%20international%20civil%20aviation%20%5D%2CqueryType%3D%5B64%5D,sm=s,l=library2_lib> accessed 13 October 2024.

141 Foreign, Commonwealth & Development Office of the UK, 'UK Treaties Online – Convention on International Civil Aviation' <https://treaties.fcdo.gov.uk/responsive/app/consolidatedSearch/#search/v=list,c=1,q=qs%3D%5Bconvention%20on%20international%20civil%20aviation%20%5D%2CqueryType%3D%5B64%5D,sm=s,l=library2_lib> accessed 13 October 2024.

Section 4.3 contains the analysis of the relevant legislation in the metropolitan area of the UK, that is, England and Wales.[142] The Crown Dependencies and Overseas Territories do not enjoy sovereignty but have autonomy regarding aviation,[143] meaning that only England and Wales are represented in the ICAO Council. As these two parts of the UK have separate jurisdictions, including those related to the criminal liability of pilots, this section focuses only on the metropolitan UK.

4.3.1.2 The implementation of ICAO SARPs with reference to the criminal liability of pilots

The most recent Universal Safety Oversight Audit Programme (USOAP) results of the UK are dated 2018. These results are as follows:

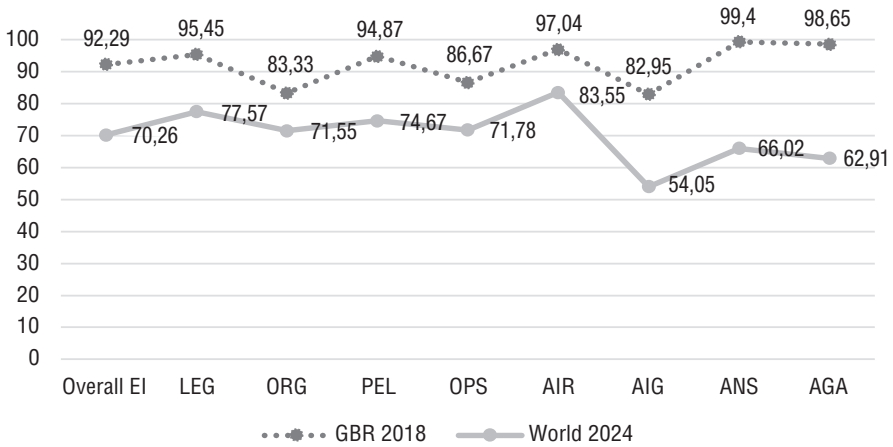

Figure 3 USOAP Result Comparison – The UK v. Global Average (13 October 2024)

The Figure above shows that in 2018, the UK's implementation level was 92.29%, significantly above the global average, making it one of the leading States in the implementation of SARPs.

To begin with, the UK declares that there is no "significant" difference between the UK legislation and ICAO Annex 1 but that there are such differences between the UK legislation and ICAO Annexes 2, 6, and 11. In implementing its obligations in Article 26 of the Chicago Convention (1944), UK legislation does not provide protection against public disclosure of a draft

142 UKCAA, 'State Safety Program – the UK Aviation System' <https://www.caa.co.uk/safety-initiatives-and-resources/how-we-regulate/state-safety-programme/safety-policy-objectives-and-resources/the-uk-aviation-system/> accessed 13 October 2024.

143 When the Crown of the UK authorises, the Crown Dependencies and Overseas Territories can become parties to international treaties. *See*, for example, Hendry I and Dickson S, *British Overseas Territories Law* (2nd edn, Hart Publishing 2018) 23. *See also*, Section 1.4.2 of this research.

final report, meaning that Standard 5.12 of ICAO Annex 13 is not implemented.[144] However, it is unclear if the draft final report can be used to establish a criminal offence; this is not clear from the UK's self-assessment or the AIP.

Other than this, there appears to be some discrepancy between the self-assessment results and the AIP of the UK regarding the implementation status. Therefore, this study looks further into the legislative framework in more detail.

4.3.2 Legislative framework of the UK

4.3.2.1 Introduction

In the UK, both general criminal and criminal air laws regulate pilots' criminal liability. The Air Navigation Order of 2016, amended in April 2022, hereinafter the ANO 2022, governs the criminal liability of pilots.[145] Civil aviation requires various other regulations. For instance, the responsibility and mandate of the UK Civil Aviation Authority (UKCAA) are referred to in the Civil Aviation Act 1982 of the UK.[146] Next to this, the UK Reg (EU) No 996/2010, hereinafter the 'UK Accident Investigation Regulation', is also relevant for this research.

4.3.2.2 General criminal law

In the UK, statutory law, common law, and legal principles regulate criminal offences. The Offences Against the Person Act of 1861 functions as the primary source applicable to pilots in that this Act regulates homicide or harm caused to persons.[147]

This study does not delve into offences described under the general criminal law, however, because UK air law does specifically govern the acts of pilots, also in terms of criminal liability. The following sections explain this approach, pursuant to which aviation cases are dealt with under the *lex specialis* of UK aviation law.

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144 Self-assessment of the UK, See PQ 6.417 and 'Aeronautical Information Publication of the UK' (Effective 5 Sept 2024) <https://www.aurora.nats.co.uk/htmlAIP/Publications/2024-09-05-AIRAC/html/index-en-GB.html> accessed 13 October 2024.

145 The UK, Air Navigation Order 2016 SI 2016 No 765, Air Navigation Order 2016/765 last amended 13 April 2022 (hereinafter the 'ANO 2022'). There are also other acts in the UK that enforce prosecution, such as the Airport Acts 1986 or the Aviation Security Act 1982.

146 Civil Aviation Act 1982 of the UK (UK Public General Acts 1982 c. 16) Section 3.

147 There has been an attempt to prosecute a pilot based on Section 1(1) of the Criminal Attempts Act 1981 that provides: "[i]f, with intent to commit an offence to which this section applies, a person does an act which is more than merely preparatory to the commission of the offence, he is guilty of attempting to commit the offence." *See*, UKCAA, 'CAA Announces Charges Relating to the Accident Involving N264DB' (2020) <https://www.caa.co.uk/news/caa-announces-charges-relating-to-the-accident-involving-n264db/> accessed 13 October 2024.

4.3.2.3 Criminal air law

- *The Air Navigation Order 2022 (ANO 2022)*

In the UK, Article 265 of the ANO 2022 forms the legal basis for the criminal liability of pilots.[148] Its provisions prescribe offences and penalties. Breaches of the ANO 2022, including rules on approvals, licenses, and certificates, are considered offences.[149] Besides prosecution, the ANO also provides for civil sanctions.

The criminal offences under ANO 2022 are drawn up in separate lists.[150] These include negligent or reckless operation of the aircraft, which is likely to endanger safety,[151] or problematic use of psychoactive substances as punishable conduct.[152] The rules on approvals, licenses, and certificates are referred to in the Aviation Safety (Amendment, etc.) (EU Exit) Regulations 2019. The concerned offences apply to aircraft, operators, and the PIC.[153]

- *UK Accident Investigation Regulations and MoU*

Even after the UK exit from the EU, the EU Regulation on the investigation and prevention of accidents and incidents in civil aviation remained applicable in the form of the UK Regulation (EU) No 996/2010, hereinafter the "UK Accident Investigation Regulation,"[154] supplemented by the Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2018.[155] This Regulation provides the basis for the implementation of the safety paradigm and the relevant SARPs of ICAO Annex 13.[156]

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148 ANO 2022 Article 265 Offences and penalties.

149 ANO 2022 Article 265 (1).

150 ANO 2022 Article 265 (5), (6), and (7). *See also* Parts 1, 2, and 3 of Schedule 13 of the ANO 2022.

151 The Crown Prosecution Service, 'Transport Offences' (2019): 'Likely" means "a real risk, a risk that should not be ignored" rather than more likely than not: R v Whitehouse [2000] Crim LR 172, CA' <https://www.cps.gov.uk/legal-guidance/transport-offences> accessed 13 October 2024.

152 Air Navigation Order 2016, Article 240. However, Section 240 may apply more to external threats against the aircraft and persons on board. Air Navigation Order 2016, Section 265, paragraphs 7 and 8. *See also* UK Reg (EU) No 923/2012 (as amended), SERA 2020 and 3101. The wording of the SERA specifications is equivalent to the rules of the air contained in Annex 2 to the Chicago Convention (1944). *See* Section 2 of Air Navigation Order 2016. This includes when the pilot does not do the pre-flight inspections. *See* the Commission Regulation (EU) No 593/2012 amending Regulation (EC) No 2042/2003 on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks, Annex I (Part-M), M.A.201(d): "The pilot-in-command or, in the case of commercial air transport, the operator shall be responsible for the satisfactory accomplishment of the pre-flight inspection. This inspection must be carried out by the pilot or another qualified person but need not be carried out by an approved maintenance organisation or by Part-66 certifying staff."

153 ANO 2022 Article 265 (1).

154 The UK Reg (EU) No 996/2010 (the UK Accident Investigation Regulation) based on the Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC (Text with EEA relevance) (Retained EU Legislation).

155 Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2018 of the UK (Statutory Instruments 2018 No. 321 coming into force on 9 April 2018).

156 Section 4.3.1.2 of this research.

Next to the legal framework, there is also a practical arrangement. The Aviation Accident Investigation Authority of the UK (AAIB) signed a Memorandum of Understanding (MoU) with the Crown Prosecution Service (CPS) and other accident investigation boards.[157] Albeit only partially, this MoU reflects Standard 5.10 of ICAO Annex 13, which requires coordination between the investigator in charge and the judicial authorities, that is, in the UK, between the AAIB and CPS.[158] Without any binding effect,[159] the mentioned MoU aims to create "practical working arrangements."[160]

In the following paragraphs, I attempt to analyse the interaction between the UK legal framework and policy on the one hand and the safety and transparency paradigms on the other. Also, I discuss how these paradigms interact and relate to UK regime responses to legal certainty.

Under Article 11 of the UK Accident Investigation Regulation, the chief investigator is granted "unhampered access" to accident evidence and scenes of the accident or incident.[161] The MoU also grants such prioritised access to the AIB, potentially considering the "public interest" for "safety considerations" while recognising the possibility of concurrent investigations of the technical investigation body and judicial body.[162] In other words, in practice,[163] technical and judicial investigations can be, and are, conducted in parallel.[164] Therefore, the immediate unrestricted and unhampered access under Article 11 does not imply the provision of prioritised and exclusive access to the UKAAIB. As the goal of the MoU is to promote the effectiveness of and separation between technical and judicial investigation "where permitted,"[165] the judicial investigation may obtain prioritised

157 Government of the UK, *Policy Paper – Memorandum of Understanding between The Crown Prosecution Service and the Air, Marine and Rail Accident Investigation Branches* (2008), updated in September 2020.

158 Section 3.4.2.2 of this research.

159 Government of the UK, *Policy Paper – Memorandum of Understanding between The Crown Prosecution Service and the Air, Marine and Rail Accident Investigation Branches* (2008), updated in September 2020, 2.

160 Government of the UK, *Policy Paper – Memorandum of Understanding between The Crown Prosecution Service and the Air, Marine and Rail Accident Investigation Branches* (2008), updated in September 2020.

161 UK Accident Investigation Regulation, art 11.

162 Government of the UK, *Policy Paper – Memorandum of Understanding between The Crown Prosecution Service and the Air, Marine and Rail Accident Investigation Branches* (2008), updated in September 2020, 1.

163 As said, the MoU is not binding.

164 *See* UK Accident Investigation Regulation Art 12 (1): "When a judicial investigation is also instituted…"*See also* Government of the UK, *Policy Paper – Memorandum of Understanding between The Crown Prosecution Service and the Air, Marine and Rail Accident Investigation Branches* (2008), updated in September 2020, 1

165 Government of the UK, *Policy Paper – Memorandum of Understanding between The Crown Prosecution Service and the Air, Marine and Rail Accident Investigation Branches* (2008), updated in September 2020, 1.

status. However, the MoU recognises the possible precedence of a technical investigation over a criminal investigation.[166]

The CPS also dictates that, despite the preference of the AAIB that prosecution be initiated after the publication of an accident report, the CPS still may commence prosecution based on "valid reasons."[167] On the one hand, this practical working arrangement was articulated to support the safety paradigm by implementing ICAO Annex 13 Standard 5.10. On the other hand, the transparency paradigm, supporting prosecution, may also prevail when dealing with the criminal liability of pilots.

Furthermore, the disclosure of information to the public and the use of information to establish criminal liability is somewhat controversially regulated. Article 14 of the UK Accident Investigation Regulation protects sensitive evidence, including statements of pilots or cockpit voice recordings and transcripts.[168] However, following an Order of the High Court, the transparency paradigm prevails, the Order determining whether and which evidence is admissible in relevant proceedings.[169] Said admissibility is identified in one judgment, which will be discussed in Section 4.3.4 on the UK case law. Section 4.3.4. contains an explanation of whether and how the transparency and legal certainty paradigms may be applied to the detriment of the safety paradigm in the UK.

- *Civil sanctions as an alternative to criminal sanctions*

In the UK, there has been discussion on whether or not criminal sanctions can be substituted by civil sanctions in the form of monetary fines in the context of civil aviation. The discussion was caused by the fact that the UK

166 Government of the UK, *Policy Paper – Memorandum of Understanding between The Crown Prosecution Service and the Air, Marine and Rail Accident Investigation Branches* (2008), updated in September 2020, para 6.

167 Government of the UK, *Policy Paper – Memorandum of Understanding between The Crown Prosecution Service and the Air, Marine and Rail Accident Investigation Branches* (2008), updated in September 2020, para 22: "The AIBs and criminal court proceedings 22. Although it is the AIBs' preference that any prosecution take place after their investigation report has been published, there may be valid reasons why a prosecution should commence before publication."

168 Records revealing the identity of persons who have given evidence in the context of the safety investigation, including third-party experts, Cockpit video and image recordings and transcripts, air traffic control recordings, flight data recorders, All communications between persons having been involved in the operation of the aircraft; and Information collected by the AAIB which is of a particularly sensitive or personal nature. *See also*, Government of the UK, *Policy Paper – Memorandum of Understanding between The Crown Prosecution Service and the Air, Marine and Rail Accident Investigation Branches* (2008), updated in September 2020, Annex B. Also, any other evidence may avoid public disclosure if the disclosure hampers the fact-finding. *See* UK Accident Investigation Regulation art 15(4).

169 In case of maritime accidents, reports are generally inadmissible in civil and criminal proceedings without an order of the High Court. *See*, Government of the UK, *Policy Paper – Memorandum of Understanding between The Crown Prosecution Service and the Air, Marine and Rail Accident Investigation Branches* (2008), updated in September 2020, 4.

government did not consider that the UKCAA had a proportionate and flexible approach to "all breaches of aviation safety and airspace regulations."[170] This view initiated an impact assessment to find the best resolution to promote safety.[171] While it holds that criminal prosecution is "intrusive," "time-consuming," "costly, and disproportionate,"[172] the assessment considers that more extensive use of prosecution can benefit UK civil aviation as an effective deterrent mechanism against non-compliance.[173]

The UK CAA is a prosecutorial authority when it comes to breaches of aviation safety rules and aviation-related consumer protection and health and safety requirements, as tasked by the UK Department for Transport to investigate and prosecute. The UK CAA ensures that the aviation rules for which it is responsible are properly observed and appropriately enforced by prosecuting persons who may be guilty of breaching such rules.[174]

The UK Department of Transportation acknowledges that "[c]ourt action can sometimes be slow, cumbersome and expensive, and a criminal sanction may be a disproportionate way of enforcing aviation related offences. Civil sanctions are intended as a more flexible and proportionate alternative."[175] At the same time, safety concerns require immediate attention and enforcement.[176]

Thus, the consultation conducted by the UK Department of Transportation concluded that civil sanctions better fit the offences identified in ANO 2022 Section 265.[177] Nevertheless, the UK CAA still utilises both methods, that is, the instigation of criminal proceedings and the imposition of civil sanctions as enforcement tools depending on the seriousness of the conduct.[178]

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170 Department of Transport, *Impact Assessment (IA) – CAA Civil Sanctions* (2011) 1

171 UK Department of Transport, *Impact Assessment (IA) – CAA Civil Sanctions* (2011) 1

172 UK Department of Transport, *Impact Assessment (IA) – CAA Civil Sanctions* (2011) 1 and 5

173 UK Department of Transport, *Impact Assessment (IA) – CAA Civil Sanctions* (2011) 2. Currently, criminal prosecution is relevant to Level 1 Findings. Level 1 finding is for "the level of compliance and/or safety performance of an organisation or individual has fallen to the extent that there is a potential or significant risk to safety." *See* CAA UK, *CAP 1074 – Safety and Airspace Regulation Enforcement Guidance* (2015) 6.

174 See, Enforcement and prosecutions | Civil Aviation Authority (caa.co.uk), accessed 13 October 2024.

175 UK Department of Transport, *Consultation on Civil Sanctions for the Civil Aviation Authority* (2015) 5.

176 UK Department of Transport, *Consultation on Civil Sanctions for the Civil Aviation Authority* (2015) 27.

177 *See* Section above on the ANO 2022 in this Chapter (4).

178 UKCAA, *CAP 1422 – Code of Practice for the Investigations and Enforcement Team* (3rd edn, 2020) 8. Currently, criminal prosecution is relevant to Level 1 Findings. Level 1 finding is for "the level of compliance and/or safety performance of an organisation or individual has fallen to the extent that there is a potential or significant risk to safety." *See* CAA UK, *CAP 1074 – Safety and Airspace Regulation Enforcement Guidance* (2015) 6.

4.3.3 Enforcement

The CPS is generally responsible for prosecution in the UK.[179] Since December 2012,[180] prosecution related to transport-related accidents has been mainly enforced by the UKCAA.[181] However, the UKCAA, as an "independent regulator" dealing with civil aviation matters, [182] has the power to prosecute criminal offences under Section 20(1A) of the Civil Aviation Act 1982.[183] Therefore, regarding aviation matters in the UK, the CPS is not an enforcement body. It is not clear if the CPS can decide that it wants to prosecute, but not under *lex specialis* air law crimes, but general ones, such as negligence causing death. However, the *lex specialis* rules generally will mean that prosecution thereunder is preferred.

The UKCAA states precisely what Article 12 of the Chicago Convention (1944) dictates: "[p]rosecution is one means by which the UKCAA ensures that the aviation rules for which it is responsible are properly observed and appropriately enforced."[184] Thus, prosecution should be considered one of the enforcement tools under Article 12 of the Chicago Convention (1944) to promote safety.[185]

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179 Section 3(2)(a) Prosecution of Offices Act 1985

180 *See* Civil Aviation Act 2012, 2019 Chapter 19, Introductory Text.

181 Usual prosecution cases must fall under the scope of the CPS. However, under Under Section 3(2)(a) and Section 1(7) of the Prosecution of Offences Act 1985, upon the consent of the CPS, the CAA has the legal ground to take over any prosecution of offences. In this case, the CPS cannot institute any proceedings for such cases based on Section 92(2) of the Civil Aviation Act 1982. Because it is not the duty of the director to take over the proceedings, the Director may never institute the proceedings. *See* Section 6 Prosecution of Offences Act 1985.

182 UKCAA, *CAP 1422 – Code of Practice for the Investigations and Enforcement Team* (3rd edn, 2020) Foreword.

183 *See* Section 101 of the Civil Aviation Act 2012. The UKCAA states that it is tasked by the Department for Transport with the responsibility to enforce in the form of prosecution. *See*, Civil Aviation Act 1982, Section 20(1A). The scope of prosecution includes consumer protection and health and safety requirements, too. Please *See* UKCAA, 'Enforcement and prosecutions – CAA's regulatory enforcement role, and recent court actions' (U/A) <https://www.caa.co.uk/our-work/about-us/enforcement-and-prosecutions> accessed 13 October 2024.

184 UKCAA, 'Enforcement and prosecutions – CAA's regulatory enforcement role, and recent court actions' (U/A) <https://www.caa.co.uk/our-work/about-us/enforcement-and-prosecutions> accessed 13 October 2024 and UKCAA, *CAP 1326 – CAA Regulatory Enforcement Policy* (2012). *See* also, UKCAA, *CAP 1074 – Safety and Airspace Regulation Enforcement Guidance* (2015) 8: "We will consider investigation with a view to prosecution whenever there is an alleged breach of the law (including of the applicable EU regulations), particularly when there has been a serious breach of the regulation or deliberate criminal action is suspected. A decision as to whether or not to prosecute will be taken when we are satisfied that a decision to prosecute would comply with the Code for Crown Prosecutors."

185 *See* Chapter 3

In addition, the UKCAA encourages reports of suspected breaches.[186] It specifies that "low flying" and "unsafe flying" can be reported by anyone.[187] The views of the UKCAA can effectively observe violations and initiate enforcement actions, including criminal prosecution, in its reports.[188]

4.3.4 Case law[189]

4.3.4.1 November Oscar Case[190]

On 21 November 1989, Airman Stewart, who served as the PIC of a British Airways Boeing 747 aircraft, flew from Bahrain to London, UK. The PIC and his co-pilot had been experiencing stomach flu a few days before. Nevertheless, they received permission from a medical doctor to fly the aircraft to London. Combined with the bad weather and the bad health condition of the co-pilot, the PIC flew the aircraft with very little rest. Because of

186 UKCAA, 'Report a potential breach of aviation law' <https://www.caa.co.uk/our-work/make-a-report-or-complaint/report-a-potential-breach-of-aviation-law/> accessed 13 October 2024.

187 UKCAA, 'Report a potential breach of aviation law' <https://www.caa.co.uk/our-work/make-a-report-or-complaint/report-a-potential-breach-of-aviation-law/> accessed 13 October 2024

188 UKCAA, *CAP 1422 – Code of Practice for the Investigations and Enforcement Team* (3rd edn, 2020) 11.

189 In the UK, other important cases and writings of scholars discuss the balancing test in the UK. This research does not analyse those cases as the High Court's assessment is intended to cover civil or administrative proceedings but not criminal proceedings. For more information, *see* Rogers & Anor v. Hoyle [2013] EWHC 1409 (QB), Re (On the Application of the Secretary of State) v. Her Majesty's Senior Coroner for Norfolk & Anor [2016] EWHC 2279 (Admin), Chief Constable of Sussex Police v. Secretary of State for Transport & Anor [2016] EWHC 2280 (QB). *See* also, Challinor CAS, 'The Decision of the English High Court in Rogers & Anor v. Hoyle: Clipping the Wings of the Principles of Air Accident Investigation' (2014) 39(1) Air and Space Law 83, Challinor CAS, 'Accident Investigators Are the Guardians of Public Safety: The Importance of Safeguarding the Independence of Air Accident Investigations as Illustrated by Recent Accidents' (2017) 42(1) Air and Space Law 43, and Challinor CAS, 'Defending Just Culture in Air Accident Investigations: The Decision of the English High Court in British Broadcasting Corporation & Anor v. Secretary of State for Transport & Anor' (2019) 44 Air and Space Law 583.

190 The technical and judicial inquiries are not publicly available. Therefore, as Bennun insisted, this research is based on academic journal articles and magazine articles that concern the case. *See* Bennun ME, 'Prosecuting Professional Pilots in the United Kingdom after November Oscar: Reflections on the Law and Policy' (1995) 61(2) Journal of Air Law and Commerce 331, Footnote 1 and Marvyn E Bennun GM, 'Flying Safely, the Prosecution of Pilots, and the ICAO Chicago Convention: Some Comparative Perspectives' (2009) 74 Journal of Air Law and Commerce 737, 771-774.

the fog, the PIC had to carry out a Category III landing,[191] which he had never executed before. The aircraft almost touched the roof of a hotel in an attempt to land. His second attempt succeeded, and there were no fatalities, which still led to the prosecution of the PIC.

The basis of the prosecution was "breaking regulations on low-cloud landings."[192] There were two legal bases for this prosecution.[193] The first was Article 55 of the Air Navigation Order 1995, which provides that "a person shall not recklessly or negligently act in a manner likely to endanger an aircraft or any person therein."[194] The second ground was Article 56 of the same Order, which provides that "[a] person shall not recklessly or negligently cause or permit an aircraft to endanger any person or property."[195] While Article 55 was applied to endangering passengers, the charge under Article 56 addressed the endangerment of third parties on the ground.[196]

The PIC was found guilty of endangering passengers but not for endangering the third parties on the ground. For the breach of Article 55, the jury found that the PIC had negligently endangered the aircraft and passengers.[197] This was based on the prosecutor's arguments that "it would have been catastrophic" if the PIC had not succeeded in the second attempt.[198] On May 8, 1991, a jury at Her Majesty's Crown Court in Isleworth held that the PIC had negligently endangered the safety of the aircraft and the passengers.[199]

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191 Under the most recent edition of Annex 6, the Category III approach means a "decision height lower than 30m (100ft) or no decision height and a runway visual range less than 300m or no runway visual range limitations." However, the Category III approach is also defined as follows: "an aircraft to approach until it is 200 feet (61 m) over the ground, within a 1⁄2 mile (800 m) of the runway. At that point the runway should be visible to the pilot; if it is not, they perform a missed approach." *See*, ICAO, *Annex 6 Operation of Aircraft*, vol Part I – International Commercial Air Transport – Aeroplanes (12th edn, 2022) for the first definition mentioned. For the second definition, *see,* as an example, Hussain M, 'November Oscar Incident' (2022) <https://mudassir-hussain120.medium.com/november-oscar-incident-34191581d490#:~:text=Back%20in%20November%201989%2C%20on,or%2012%20feet%20of%20disaster.> accessed 13 October 2024. CAT III approach is an instrument landing.

192 Connett D, 'Pilot in Near Miss Found Dead in Car' *Independent* (3 December 1992) <https://www.independent.co.uk/news/uk/pilot-in-near-miss-found-dead-in-car-1561147.html> accessed 13 October 2024.

193 *See*, Bennun ME, 'Prosecuting Professional Pilots in the United Kingdom after November Oscar: Reflections on the Law and Policy ' 61 Journal of Air Law and Commerce 331, 333.

194 Air Navigation Order 1989 of the UK, Article 50. Currently, this is Section 240 of the ANO 2022

195 Air Navigation Order 1989 of the UK, Article 51. Currently, this is Section 241 of the ANO 2022.

196 *See*, Schedule 12 on Article 111(6) of the ANO 1995.

197 Wilkinson S, *The November Oscar Incident* (Air and Space Smithsonian 1993 Issue Autumn 1993, 1993) 4. The case is unreported.

198 Stafford S, 'British Airways Pilot Guilty of Negligence in Near-Crash' *United Press International* (8 May 1991) <https://www.upi.com/Archives/1991/05/08/British-Airways-pilot-guilty-of-negligence-in-near-crash/3098673675200/> accessed 13 October 2024.

199 See, Wilkinson S, *The November Oscar Incident* (Air and Space Smithsonian 1993 Issue Autumn 1993, 1993).

In this case, a commentator argued that in this particular case, the prosecution, which is currently delegated to the UKCAA, did not comply with the general policy of the CPS of the time to discourage criminal prosecution against offences involving certain factors, stipulating the following:[200]

> *"[A] prosecution is less likely to be needed if, amongst other factors, the offense was committed as a result of a genuine mistake or misunderstanding – though this must be balanced against the seriousness of the offence – or if the loss or harm can be described as minor and was the result of a single incident, particularly if it was caused by a misjudgement."*[201]

Although this incident occurred before the introduction of Just Culture in 2006, this argumentation aligns with that concept. Indeed, Just Culture is designed not to apportion blame on honest mistakes.[202]

A second criticism pertained to the fact that the negligence of the PIC was hard to determine. This happens especially when judges or juries are less aware of the complexities of international civil aviation.[203] Although Bennun referred to the Road Traffic Act 1988 of the UK and tried to interpret it based on Article 111(2) of the ANO 1995 analogically,[204] his conclusion was that the interpretations were inconsistent and unclear. Such lack of clarity hurts the paradigm of legal certainty.

Moreover, the court did not examine the aircraft's operator's responsibilities. According to the provisions of ICAO Annex 6,[205] for commercial airline pilots, British Airways, as an operator, was also responsible for the actions of the PIC in the operation of the aircraft. This responsibility has been codi-

200 Again, these unavailable official records include the relevant incident report and judgment. According to the public online search, because this event was a serious incident, the investigation board did not investigate as they were involved in other fatal accident investigations. The PIC also did not report this event, although he might have had to do so based on Article 94 of the Air Navigation Order 1989 of the UK. The PIC argued that "because he had at least initiated the go-around from decision height and had landed successfully out of the second approach, it did not constitute an 'occurrence,'" to which only a few of the juries agreed. *See*, Skybrary, 'B741, British Airways, London Heathrow UK, 1989 (Legal Process – Flight Crew)' (Unknown) <https://skybrary.aero/articles/b741-british-airways-london-heathrow-uk-1989-legal-process-flight-crew> accessed 13 October 2024 and Wilkinson S, *The November Oscar Incident* (1993) 8.

201 Bennun ME, 'Prosecuting Professional Pilots in the United Kingdom after November Oscar: Reflections on the Law and Policy' 61 Journal of Air Law and Commerce 331, 347, citing Crown Prosecution Service, 'The Code for Crown Prosecutors 6.5 (1994) note 61 and 62.

202 Sections 1.4.4 and 2.5 of this research.

203 *See*, Syed M, *Black Box – denken : maak van je fouten een succes* (Kosmos Uitgevers 2015) and Wilkinson S, *The November Oscar Incident* (1993)

204 Bennun ME, 'Prosecuting Professional Pilots in the United Kingdom after November Oscar: Reflections on the Law and Policy' 61 Journal of Air Law and Commerce 331, 332-338.

205 Standard 3.4.1.4.

fied in Article 28 of the ANO 1989.[206] Under Article 99 of the same Order, the operator could have also been prosecuted. Indeed, the prosecuted PIC claimed that the operator influenced his decision.

4.3.4.2 Cases of John Hoare

In 2019 and 2020, Airman Hoare was prosecuted for low flying.[207] He was witnessed flying below 500 feet during a paramotor flight,[208] which was, and still is, prohibited.[209] The grounds for prosecution were Article 249(2) of the ANO 2022 prescribing compliance with the UK Standardised Rules of the Air where low flying is prohibited, and or, in conjunction with Article 265(6) providing that non-compliance with any provisions in Chapter 1 of Schedule 13 Part 2 referring to Art. 249(2) of the ANO 2022 is an offence and is punishable. He pleaded guilty.[210]

As compared to other cases, this case is rather straightforward. ANO 2022 regulates the flying altitude to promote the safety paradigm. The pilot pleaded guilty. As the altitude is clearly mentioned in various provisions of the regulation, the prosecution did not hamper the paradigm of legal certainty.

4.3.4.3 Case of the Shoreham Air Show crash of 2015

On August 22, 2015, a tragic accident occurred at the Shoreham Royal Air Force Association air show, resulting in the crash of a Hawker Hunter T7 G-BXFI aircraft piloted by Airman Hill.[211] According to the facts of the case, eleven individuals lost their lives in the accident, [212] while the pilot survived with injuries.[213] Subsequently, both the police and the AAIB launched investigations. The police collected approximately 330 statements from

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206 ANO 1989, Article 28 (2)*: "The operator of an aircraft registered in the United Kingdom shall not permit any person to be a member of the crew thereof during any flight for the purpose of public transport (except a flight for the sole purpose of training persons to perform duties in aircraft) unless such person has had the training, experience, practice and periodical tests…"*

207 *See*, UKCAA, 'CAA Successful Prosecutions 1 April 2019 to 31 March 2020' (2021) 4. In addition to the case referred to in this Section, Hoare had been multiple times prosecuted for 'deliberately' low flying since 2010 and the most recently, in 2023. *See,* UKCAA, 'CAA Successful Prosecutions: 1 April 2015 to 31 March 2016' (2016) and UKCAA, 'CAA Successful Prosecution Results from 1 April 2010 to 31 March 2011 (2011).

208 *See*, Burnham-on-sea, 'Gliding Enthusiast Banned from Flying Above Burnham and Brean Beaches' (2020) <https://www.burnham-on-sea.com/news/gliding-enthusiast-banned-from-flying-above-burnham-and-brean-beaches-for-3-years/> accessed 13 October 2024.

209 UK Standardised Rules of the Air, Annex I – Rules of the Air, SERA. 5005(f).

210 *See*, UKCAA, 'CAA Successful Prosecutions 1 April 2019 to 31 March 2020' (2021) 4.

211 *See*, Air Accidents Investigation Branch of the UK, 'Aircraft Accident Report AAR 1/2017 – G-BXFI, 22 August 2015' 7-160.

212 *See*, Air Accidents Investigation Branch of the UK, 'Aircraft Accident Report AAR 1/2017 – G-BXFI, 22 August 2015' 11.

213 *Sussex Police v Secretary of State for Transport & Anor [2016] EWHC 2280 (QB) (28 September 2016)* § 5 [*Sussex Police v Secretary of State for Transport & Anor (2016)*].

persons who had attended the air show.[214] The AAIB's completed investigation revealed the absence of a flight recorder but the presence of two video recording cameras in the cockpit.[215]

The Chief Constable of Sussex Police applied to the Transport Secretary of State in the UK for the disclosure of the pilot's statements and other items.[216] This application required a delicate balance to be made between the public interest in transparency, effective crime investigation and detection, and potential impacts on future AAIB investigations.[217] The British Airline Pilots Association (BALPA), the labour union of the British Airline, raised concerns about the disclosure criteria.[218] Legal provisions, such as Article 14 of the EU Regulation 996/2010 and Regulation 18 of the Civil Aviation (Investigation of Air Accidents and Incidents) Regulation 1996, [219] supported non-disclosure of specific accident data and safety information in alignment with international Standards.[220]

The High Court conducted a balancing test to assess the potential harm to future investigations against public interest in disclosure. [221] It evaluated each piece of evidence separately, rejecting the pilot's statements with

214 *Sussex Police v Secretary of State for Transport & Anor (2016)* § 6.

215 *Sussex Police v Secretary of State for Transport & Anor (2016)* § 7.

216 *Sussex Police v Secretary of State for Transport & Anor (2016)* § 40. Initially, the application included experiments and test results that were private in nature towards people other than the pilot. However, later, the Chief constable decided not to seek disclosure. *See*, [2016] EWHC 2280 (QB) §s 51-54.

217 *Sussex Police v Secretary of State for Transport & Anor (2016)* § 3.

218 *Sussex Police v Secretary of State for Transport & Anor (2016)* § 4: "The British Airline Pilots Association ("BALPA") also appeared in the public part of the hearing in this case and made submissions in opposition to the Chief Constable's application for disclosure. In particular Mr. Martin Chamberlain QC submits on behalf of BALPA that the Court cannot order disclosure in a case such as this unless the criteria for the making of a production order in the Police and Criminal Evidence Act 1984 ("PACE") are satisfied. In the alternative, he submits that, in conducting the balancing exercise which has to be performed by this Court, a weighty factor militating against disclosure should be the fact that, as he submits, those criteria in PACE are not satisfied." For the definition of a balancing test, *see* Section 3.4.2.2 of this research.

219 *Sussex Police v Secretary of State for Transport & Anor (2016)* § 24. art 14 of the UK Regulation 996/2010 and Regulation 18 of the Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 1996.

220 *Sussex Police v Secretary of State for Transport & Anor (2016)* § 26.

221 The High Court referred to the decision of the Outer House of the Court of Session in Lord Advocate 2015 SLT 450, which conducted the balancing test on criminal matters. However, the decision intended not to create any precedence as then technical investigators of the AAIB would need to be challenged to disclose relevant accident investigations. *See Sussex Police v Secretary of State for Transport & Anor (2016)* § 28 and Lord Advocate 2015 SLT 450 (Lord Jones) §s 58-60. In this test, three references were made based on cases in Australia, New Zealand, and Canada. However, the High Court also found these cases less relevant as these cases were not determined based on the balancing test. *See* also, [2016] EWHC 2280 (QB) §s 30-34.

respect to concerns about adverse impacts on technical investigations aimed at enhancing the safety of flight.[222] However, the footage recorded from cameras in the cockpit was deemed justifiable for disclosure, given its voluntary recording for leisure and commercial purposes.[223]

In 2018, Mr. Hill faced charges of gross negligence manslaughter, fo which he was eventually acquitted.[224] The Coroner sought disclosure of the film footage, expert reports, and transcripts to highlight the incompleteness of the AAIB investigation.[225] The Court again conducted an independent balancing test, now weighing "harm or detriment" to future AAIB investigations against the "benefit" of examining the Coroner's reasons for seeking the mentioned materials and information collected during the AAIB investigation.[226] The Court concluded that there was no credible evidence of deficiencies in the AAIB investigation,[227] leading to the rejection of the Coroner's application.

4.3.5 Concluding remarks of Section 4.3

Based on the above analysis, the UKCAA enforces prosecution as one of its enforcement tools under Article 12 of the Chicago Convention (1944) in order to promote safety.[228] UK air law covers a wide range of offences based on rules of the air and other flight and manoeuvre rules, with an explicit scheme for the punishment of aviation-related crimes based on criminal air law, functioning as a *lex specialis*.

While the level of transparency may fluctuate,[229] it follows from the above examination of UK rules and case law that applicable regulations provide

222 *Sussex Police v Secretary of State for Transport & Anor (2016)* §s 41-45.

223 *Sussex Police v Secretary of State for Transport & Anor (2016)* § 49.

224 *HM Senior Coroner for West Sussex v Chief Constable of Sussex Police & Ors [2022] EWHC 215 (QB)* (04 February 2022) § 6. In the end, the pilot was found not guilty. [HM Senior Coroner for West Sussex v Chief Constable of Sussex Police & Ors (2022)].

225 The High Court recognised that it was the task of the Coroner to delve into these matters for a "full, fair and fearless investigation." *See HM Senior Coroner for West Sussex v Chief Constable of Sussex Police & Ors (2022)* § 45.

226 *HM Senior Coroner for West Sussex v Chief Constable of Sussex Police & Ors (2022)* §108.

227 *HM Senior Coroner for West Sussex v Chief Constable of Sussex Police & Ors (2022)* § 12 and § 126.

228 *See* Chapter 3 of this research.

229 Sometimes, the prosecution records, which are yearly updated, provide not only a short summary of facts for each case and the relevant court but also breached provisions for some years. The shared records might not provide a full interpretation of the judgment of the court but would still enhance clarity as the facts of the cases would make the pilots aware of their actions. For the records of prosecution, *see* UKCAA, 'Enforcement and prosecutions – CAA's regulatory enforcement role, and recent court actions' (U/A) <https://www.caa.co.uk/our-work/about-us/enforcement-and-prosecutions> accessed 13 October 2024. For prosecution-related official news releases of the UK, *see,* UKCAA, 'News' <https://www.caa.co.uk/news?tag=Prosecutions> accessed 13 October 2024.

accessible guidelines for pilots to be aware of potential criminal liability, which benefits the paradigm of legal certainty.

However, except for the summary of facts and punishments, the UKCAA does not provide the full case report of each criminal prosecution to the public, and not all court cases are published. While the applicable regulations are clearly published and accessible via internet sites, pilots and other aviation actors cannot always ascertain how these regulations are applied in practice.

4.4 The Republic of Korea (ROK) regime

4.4.1 The participation of the Republic of Korea (ROK) at the Conference preparing the Chicago Convention (1944) and in the ICAO

4.5.1.1 The Chicago Convention (1944)

The ROK acceded to the Chicago Convention (1944) in 1952.[230] The Convention entered into force for the ROK in December of the same year.[231]

As an international treaty, the Chicago Convention (1944) has the same binding force as the domestic law of the ROK.[232] Thus, the ROK is a State that has adopted 'monism': international law is part of its domestic legal order. International law here directly applies as if it were domestic law.

4.5.1.2 The implementation of ICAO SARPs with reference to the criminal liability of pilots

The most recent Universal Safety Oversight Audit Programme (USOAP) results of the ROK date back to 2008.

230 US Department of State, 'Depositary – Treaty Affairs – 01 Convention on International Civil Aviation, done at Chicago December 7, 1944.' (2019) <https://www.state.gov/convention-on-international-civil-aviation-chicago> accessed 13 October 2024.

231 US Department of State, 'Depositary – Treaty Affairs – 01 Convention on International Civil Aviation, done at Chicago December 7, 1944.' (2019) <https://www.state.gov/convention-on-international-civil-aviation-chicago> accessed 13 October 2024.

232 *Constitution of the Republic of Korea* (entered into force 25 February 1988, Constitution No 10, fully revised 29 October 1987), art 6: "(1)Treaties duly concluded and promulgated under Constitution and the generally recognised rules of international law shall have the same effect as the domestic laws of the Republic of Korea."

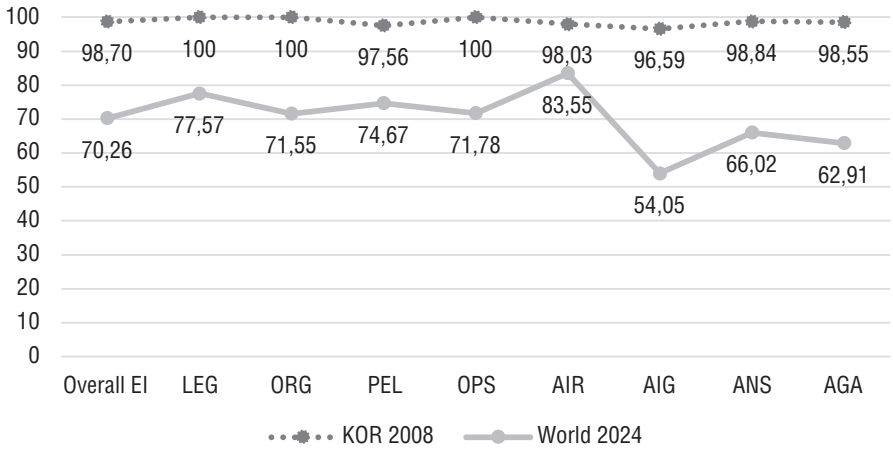

Figure 4 USOAP Result Comparison – the ROK v. Global Average (13 October 2024)

The above Figure shows that the ROK implemented nearly all SARPs, which were established in 2008, demonstrating strong support for the paradigm of safety. ICAO has not conducted a USOAP in the ROK since 2008.

In its self-assessment, the ROK also confirms that it has fulfilled all obligations reflecting the safety paradigms imposed by Articles 12 and 26 of the Chicago Convention (1944) pertinent to the criminal liability of pilots, as laid down in the protocol questions Chapter 3 of this study mentions.[233]

4.4.2 Legislative framework of the ROK

4.4.2.1 Introduction

The criminal liability of pilots is governed by general criminal law and special criminal air law.[234] As to the general criminal law, the Criminal Act of 2021 stipulates that "[t]he criminality and punishability of an act shall be determined by the law in effect at the time of the commission of that act."[235] The applicability of general criminal law extends to acts committed by any person on board a Korean aircraft, that is, an aircraft registered in the ROK.[236]

233 The self-assessment result of South Korea downloaded on 5 August 2024. When the test was conducted is unclear from the database. *See* also, Korea Office of Civil Aviation, 'Aeronautical Information Publication (E-AIP)' (Effective 25 July 2024) <https://aim.koca.go.kr/eaipPub/Package/history-en-GB.html> accessed 13 October 2024.

234 Unless provided otherwise, this research relies on the translation of the legislative framework of the ROK made by the Korea Legislation Research Institute, which is checked by the author of this research.

235 Criminal Act of 2021 of the ROK [Enforced on December 9, 2021] [Law No. 17571, December 8, 2020, partially revised], hereinafter the "2021 Criminal Act", art 1.

236 2021 Criminal Act, art 4.

As to criminal air law, the Aviation Safety Act of 2023 addresses the criminal liability of pilots, specifically the conduct of the pilot.[237] As will be explained below, the Aviation and Railway Accident Investigation Act of 2021 provides views on the safety paradigm.[238]

4.5.2.2 General criminal law

Chapter XV of the 2021 Criminal Act of the ROK pertains to crimes of traffic obstruction.[239] Composed of six articles, five provisions of Chapter XV are relevant for the prosecution of pilots.

Under Articles 186 and 187 of this act, the deliberate obstruction of air traffic by destroying or damaging navigational facilities, as well as the intentional crashing or destruction of a passenger aircraft, constitutes a serious offence. Article 187 imposes an additional penalty when such acts result in injury or death to passengers or crew members,[240] thereby elevating the severity of the offence beyond what Article 186 outlines.[241]

Furthermore, Article 189 of the Criminal Act provides that if the commission of the offences described above under Article 187, such as crashing or destroying a passenger aircraft, occurs as a result of negligence, occupational negligence, or gross negligence, these acts are still subject to punishment.[242] Given this element of negligence, the sanctions under Article 189 are less severe than those applicable under Article 187, as Article 189 addresses non-deliberate acts. Additionally, the attempted commission of these offences is also punishable under Article 190 of the Criminal Act.

However, there have been cases where pilots were prosecuted based on Article 268 of the Criminal Act, which covers "occupational or gross

237 Aviation Safety Act [Enforced on September 20, 2024] [Law No. 20396, March 19, 2024, Partially revised], hereinafter the "2024 Aviation Safety Act"

238 *The Aviation and Railway Accident Investigation Act* (Presidential Decree No. 32125, Nov. 16, 2021) Art 28(2)

239 2024 Aviation Safety Act, Chapter XV, Crimes of Traffic Obstruction

240 2021 Criminal Act, Article 187: "A person who overturns, buries, crashes or destroys a train, electric car, automobile, vessel, or aircraft in which persons are actually present, shall be punished by imprisonment with labor for an indefinite term or for at least three years."

241 2021 Criminal Act, Article 186: "A person who, by damaging or destroying a railroad, light-house or its signal or by any other means, obstructs traffic of a train, electric car, automobile, vessel or aircraft, shall be punished by imprisonment for at least one year." To be punished under Article 186, there should be a concrete danger or concrete result of obstruction against the air traffic.

242 2021 Criminal Act, Article 14: "An act performed through ignorance of the facts that constitute a crime by neglect of normal attention, shall be punishable only when prescribed so by a statute."

negligence" resulting in death or injury,[243] even outside the air traffic. In these cases, courts must interpret the term "occupational or gross negligence" based on specific circumstances and relevant regulations, including aviation-related laws. For further details on these interpretations, see the following section on criminal air law.

4.5.2.3 Criminal air law

- *2024 Aviation Safety Act in the ROK*

Chapter XII of the 2024 Aviation Safety Act in the ROK concerns aviation-related penalty provisions.[244] Pilots may lose their license when they fail to perform their duties as pilots, when they navigate an aircraft without the required qualifications, or when they take off without approval from the ATC centre.[245] These are administrative sanctions rather than a criminal penalty.

Criminal liability is at issue under the ROK regime when a crash occurs. Pilots may be prosecuted for causing a crash, regardless of whether it is a passenger or cargo aircraft.[246] The provision does not specify if a crash means an occurrence, incident, or accident. If there are fatalities, which then becomes an accident according to the ICAO definition, a harsher minimum punishment applies as compared to a crash without fatalities regulated under Article 138 of the 2023 Aviation Safety Act.[247]

If a person "endangers aviation by destroying aerodrome, airfield, airport facilities or navigation safety facilities or by other means", that person can be punished by imprisonment with prison labour of up to ten years.[248] A

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243 2021 Criminal Act, Article 268 (Death and Injury by Occupational or Gross Negligence): A person who causes the death or injury of another by occupational or gross negligence, shall be punished by imprisonment for not more than five years or by a fine not exceeding 20 million won. [This Article Wholly Amended on Dec. 8, 2020]

244 2024 Aviation Safety Act.

245 2024 Aviation Safety Act, art 43 (17), (18) and (19).

246 2024 Aviation Safety Act, art 138 (crime of endangering aircraft in flight): (1) A person who crashes, capsizes, or destroys an aircraft, light sport aircraft, or ultra-light vehicle in flight with people aboard shall be punished by death, life imprisonment, or imprisonment with labour for at least five years. (2) A person who crashes, capsizes, or destroys an aircraft, light sport aircraft, or ultra-light vehicle in flight with people aboard for committing a crime referred to in Article 140 shall be punished by death, life imprisonment, or imprisonment with labour for at least five years. Article 140 refers to another offence endangering Aviation.

247 2024 Aviation Safety Act, art 139 (crime of causing injuries or death by causing danger to aircraft in flight): "A person who causes injuries or deaths of people by committing a crime referred to in Article 138 shall be punished by death, life imprisonment, or imprisonment with labour for at least seven years."

248 2024 Aviation Safety Act, art 140 (Crime of endangering aviation): "A person who endangers aviation by destroying aerodromes, airfields, airport facilities, or navigation aids or by other means shall be punished by imprisonment with labour for up to 10 years." <Amended on Oct. 24, 2017>.

PIC who deserts an aircraft is also punishable.[249] Moreover, a breach of reporting obligations may also lead to a prosecution. Persons, including PICs, who make false reports after an accident may be fined.[250]

In contrast, outside of these specified behaviours, the 2023 Aviation Safety Act does not make behaviours of the PIC punishable for breaches of local flight and manoeuvre rules. In the latter event, this Act entitles the Korean competent aviation authorities to revoke or suspend an Air Operator Certificate of an airline if the airline does not comply with applicable safety rules.[251] Again, this is an administrative sanction rather than a criminal penalty.

If the PIC does not comply with flight rules, although such breaches do not cause an accident, it may lead to the imposition of an administrative sanction, including suspension and revocation of his/her certificate of qualifications.[252] Such administrative sanctions may also be imposed if a pilot navigates an aircraft without meeting the required qualifications for these responsibilities.[253] Because the Korean Aviation Safety Act does not attach the possibility of prosecution and criminal liability to such behaviour (of non-compliance with flight rules), I consider that this regime does not align with my analysis of Article 12 of the Chicago Convention (1944).[254]

As detailed in secondary legislation, the PIC must report accidents, serious incidents or any safety occurrences to the competent aviation authorities. Also, the PIC must provide such information in case of accidents, serious incidents or any safety occurrences involving another aircraft.[255]

Article 60 of the 2023 Aviation Safety Act allows the competent authority to choose not to punish pilots administratively. However, if the reported accidents are caused by gross negligence or wilful misconduct, the license of the reporting or reported pilots may be suspended or cancelled.[256] The competent authority is then obliged to impose administrative sanctions.[257]

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249 2024 Aviation Safety Act, art 143; *See* also art 134 paras 1 and 3 of the Enforcement Rules of the Aviation Safety Act of the ROK [Enforcement September 12, 2023] [Ministry of Land, Infrastructure and Transport Ordinance No. 1252, September 12, 2023, partially revised].

250 2024 Aviation Safety Act, art 158.

251 2024 Aviation Safety Act, art 91. Since the end of 2023, a new legislation has entered into force to impose punishments on the representatives of the airlines to be punished if an accident occurs.

252 2024 Aviation Safety Act, art43(21).

253 2024 Aviation Safety Act, art43(18).

254 *See* Section 3.3.2 of this research.

255 2024 Aviation Safety Act, art 62 (4) and (5).

256 2024 Aviation Safety Act, art 43 (1)2.

257 2024 Aviation Safety Act, art 43 (1)2.

In short, the 2023 Aviation Safety Act shows that not only criminal liability but also administrative proceedings may be involved in violations of flight and manoeuvre rules as locally implemented. Such sanctions may also be imposed without an accident being caused by the violations.

- *2021 Aviation and Railway Accident Investigation Act*

While the 2023 Aviation Safety Act regulates the overall safety of air navigation and transport, since 2006, the Aviation and Railway Accident Investigation Act of 2021 governs aviation accident investigations in the ROK.[258] Enforcement decrees and manuals assist the application of the act.[259] This Act also establishes the accident investigation board and requirements described in ICAO Annex 13,[260] next to the manual, representing the practical working scheme for accident investigations.

The Act of 2021 protects information collected during technical accident investigations by accident investigations and when national security and privacy of persons related to an aviation accident are hampered.[261] The scope of the protected information matches the protected evidence under ICAO Annex 13,[262] demonstrating support for the safety paradigm and, at the same time, limiting vertical transparency.[263] Nevertheless, the provisions do not prevent the Ministry of Transport from conducting its own fact-finding investigations in case of violations to impose administrative sanctions.[264]

- *Introduction of a new law: Serious Accidents Punishment Act of 2022*

Since 27 January 2022, the Serious Accidents Punishment Act has been introduced in the ROK.[265] This particular legislation applies to business

258 *The Aviation and Railway Accident Investigation Act* (Presidential Decree No. 32125, Nov. 16, 2021) Art 28(2).

259 *Enforcement Decree of The Aviation and Railway Accident Investigation Act* (Presidential Decree No. 32125, Nov. 16, 2021) and Ministry of Transport in the ROK, 'Aircraft Accident and Incident Investigation Manual' (6th rev. 2021).

260 Section 3.4.2.2 of this research and the *Manual of Aircraft Accident and Incident Investigation* – Part I – *Organization and Planning* (Doc 9756 – Part I) (2015).

261 *Enforcement Decree of The Aviation and Railway Accident Investigation Act* (Presidential Decree No. 32125, Nov. 16, 2021) Art 28 (1).

262 *Enforcement Decree of The Aviation and Railway Accident Investigation Act* (Presidential Decree No. 32125, Nov. 16, 2021), art 28(2).

263 Even with the presence of the *Official Information Disclosure Act* (Act No. 17690, Dec. 22, 2020) of The ROK, which ensures the "people's rights to know and to secure people's participation in state affairs and the transparency of the operation of state affairs," Article 4 limits the applicability of this Act to exclude the government of information by other acts, which must include the protection in Article 28 of the Aviation and Railway Accident Investigation Act of 2021. Therefore, for safety promotion, the transparency paradigm is hampered.

264 *See* Section above on 2024 Aviation Safety Act of the ROK.

265 Serious Accidents Punishment Act [Enforcement Date 27. Jan 2022.] [Act No.17907, 26. Jan, 2021, New Enactment]

entities that closely impact public safety, including the operation of public transport, like commercial aircraft.[266] This Act prescribes offences and punishments in case of serious accidents impacting the physical safety of citizens or employees. According to Article 6 of the Act, business owners and responsible managing officers can become criminally liable for causing these accidents,[267] if the owners and managing officers did not implement preventive measures for hazards or risks leading to an accident.[268] According to the definitions provided in the same act,[269] a CEO or head of the safety division can fall under this category.

This Act has not been specifically enacted for civil aviation but generally for the high-risk industrial sectors in order to promote the safety paradigm therein. The Corporate Manslaughter and Corporate Homicide Act of 2007 in the UK was a model for this legislation in ROK. By punishing the business owners and responsible managing officers that have the most impact on the safety of employees, like pilots, this Act aims to protect safety by decreasing the number of accidents. If airlines do not train pilots properly, if such is judged to be a breach of the safety obligation of this Act, and the pilots cause accidents, the managing director may be prosecuted and punished.

This particular Act is interesting as the government recognises the organisational factor, which was discussed in Chapter 2 of this study. The impact of airliners as operators within the scope of ICAO Annex 6 is also visible here. This emphasises the role of operators impacting the performance of pilots, which is aligned with the safety paradigm. However, how this approach can be translated into impact on the criminal liability of pilots is still unclear in the absence of pertinent case law.

4.4.3 Enforcement

Under the Criminal Procedural Act of the ROK, a public prosecutor is tasked with the institution of public prosecutions.[270] However, the public

266 Serious Accidents Punishment Act, Arts. 1 and 2.
267 Serious Accidents Punishment Act, art 6.
268 Serious Accidents Punishment Act, art 4.
269 This Act defines the business officer to be "a person who operates his or her own business or a person who conducts business by using the labor of others" and "responsible managing officer" to be "a person who represents the business and is authorized and responsible to exercise general supervision over the business, or a person who takes charge of safety and health affairs in a corresponding manner" or "[t]he head of a central administrative agency, the head of a local government, the head of a local public enterprise under the Local Public Enterprises Act, and the head of a public institution designated pursuant to Articles 4 through 6 of the Act on the Management of Public Institutions" in art 2.
270 Criminal Procedure Act [Act No. 18799, Feb. 3, 2022), Ar. 246 (Principle of Public Prosecution by State).

prosecutor may decide not to institute a public prosecution considering such factors as the age, character and conduct, intelligence and environment of the offender; the offender's relation to the victim; the motive for the commission of the crime, the means and the result thereof and the circumstances after the commission of the crime. [271]

While the Korean criminal and aviation legislation is rather detailed, it is not always clear how the two branches of law are interrelated. It could be argued that the specific aviation acts are identified as a *lex specialis* and, hence, prevail over general criminal law, as well as general procedural law. However, it is questionable whether a strict *lex specialis* approach is justified in terms of legal certainty. General criminal and criminal procedural law is also part of the legal regime of the ROK. Case law (see next section) may shed light on this interrelationship.

In addition, public procecutors' duties have a relatively wide margin of discretion when it comes to including or excluding persons in the process of prosecution, whereas several institutions are involved with the enforcement of the law, meaning that enforcement can take place through other processes than criminal prosecution. Illegal behaviour may be punished by criminal sanctions, administrative sanctions, or both. Coupled with the complexity of international air law, legal certainty is reduced by this regime.

4.4.4 Case law[272]

4.4.4.1 The 1989 KAL Tripoli crash

On 27 July 1989, Korean Air flight 803 crashed while approaching Tripoli Airport, Libya, while visibility was limited to 240 m because of fog. This crash resulted in 78 fatalities and 95 persons being injured.[273] The PIC, co-pilot, and flight engineers were prosecuted based on the results of the technical investigation. The grounds of prosecution were breaches of Articles 57

271 Criminal Procedure Act, art 247 (Principle of Discretionary Indictment), in conjunction with art 51 of the Criminal Act [Act No. 17571, Dec. 8, 2020).

272 There may be more administrative proceedings than criminal proceedings on organizations like an airline or flight school or cancellation of pilots' licenses. *See*, Supreme Court of The ROK, 2017Du47045, sentenced on October 17, 2019 [Cancellation of flight suspension order] after the accident of an Asiana Air flight in San Francisco, Seoul District Court 2004decision 2003NU 15401, Judgment on the accident and cancellation of the AOC, Seoul Administrative Court, 2014 Guhap 14303, sentenced on May 22, 2015 [Cancellation of suspension of validity of aviation worker qualification], and Busan District Court, 2015 Guhap 1374 decision, and Seoul Central District Court 2018. 2. 8. Sentence 2017 No 981 Decision Violation of Aviation Act.

273 The ROK Ministry of Foreign Affairs, 'Korean Air (KAL) Flight 803 crash in Libya, 1989' (1989) <http://opendata.mofa.go.kr/mofadocu/resource/Document/57226.page> accessed 13 October 2024.

and 132 of the 1988 Aviation Act,[274] in conjunction with Article 268 of the Criminal Act.[275]

These provisions prescribe that the PIC must take the necessary measures to rescue passengers and prevent danger to persons or objects on the ground or the water and that he/she may not leave the aircraft before the passengers.[276] If the PIC fails to comply with this procedure, he/she will be punished by imprisonment for a maximum of five years. The PIC may simultaneously be subject to the provisions of the Criminal Act in case the PIC's behaviour causes death or injury to persons, in this case, passengers, if the court qualifies such behaviour as negligence or gross negligence.[277]

According to the readout of the black box, the PIC forced the aircraft to land despite notification of the thick fog at the Tripoli Airport and subsequent notice by the ATC to advise diversion. The PIC was also aware of the malfunctioning of the instrument landing system at the airport, which is why he instructed the first officer to conduct a visual investigation of the runway. At an altitude of 800 feet, the runway was not visible. Subsequently, the PIC was notified to climb up, which he did not accept. The prosecutor charged the pilot with occupational negligence.[278]

Referring to Standard 5.12 of ICAO Annex 13 concerning non-disclosure of cockpit voice recordings and airborne image recordings and any transcripts from such recordings, as well as statements taken from persons by the accident investigation authority in the course of their investigation,[279] the

274 Aviation Act [Enforced into force on March 5, 1988] [Act No. 3996, partially revised on December 4, 1987] (hereinafter the "1988 Aviation Act"), art 57(4) prescribes the authority of the PIC as follows: "In the event of imminent danger to the aircraft during navigation, the pilot-in-command must take necessary measures to rescue passengers and prevent danger to persons or objects on the ground or the water, or the pilot-in-command shall not leave the aircraft unless he or she has made the passengers or other people on board leave." Article 132 of the Aviation Act of 1988 provides that if the PIC violates the provisions of Article 57 (4), he shall be punished by imprisonment for not more than five years.

275 Criminal Act [No. 4040, Dec 31, 1988] (hereinafter the "1988 Criminal Act"), art 268: "A person who causes death or injury to a person by negligence or gross negligence in the course of business shall be punished by imprisonment with labor for not more than five years or by a fine not exceeding 50,000 Hwan." The current Criminal Act of the ROK is similarly worded. *See* Section 4.5.2.2.

276 1988 Aviation Act, art 57(4).

277 1988 Criminal Act, art 268.

278 *See*, above and Hangyeorae, 'Tripoli Korean Air Crash Captain Sentenced to 5 Years in Prison' (7 December 1990) <https://newslibrary.naver.com/viewer/index.naver?articleId=1990120700289114003&editNo=4&printCount=1&publishDate=1990-12-07&officeId=00028&pageNo=14&printNo=794&publishType=00010> accessed 13 October 2024.

279 The case does not refer to which edition of ICAO Annex 13 its decision is based. However, the reference substance of Standard 5.12, referring to the disclosure of records and an adverse effect on the available information or future accident investigations, has not changed since the introduction of the Standard.

accused pilot argued before the Supreme Court of the ROK that the investigation authorities were not allowed to disclose technical investigation reports. The Supreme Court held that this Standard imposes an obligation on the contracting State that institutes an investigation but not on other States.[280]

In the present case, the investigation was led by the Libyan authority.[281] Therefore, the district court of the ROK could use its findings when prosecuting the pilots. The Korean Supreme Court also emphasised that Standard 5.12 of Annex 13 and the protection referred to in Standard 5.12 do not grant absolute protection from criminal liability,[282] because the same Standard (5.12) allows competent authorities of States to determine that the disclosure or use of the mentioned materials and information "outweighs the likely adverse domestic and international impact such action may have on that or any future investigations." This exception of the prohibition of disclosure has been introduced in the context of the 'Just Culture' concept, as to which see Section 2.5 of Chapter 2 and section 2.5 of Chapter 3.

4.4.4.2 The 1989 Urleung helicopter crash[283]

On 27 July 1989, a commercial operation helicopter crashed into the ocean only 1 km away from the shore of the ROK.[284] The PIC was prosecuted

280 Supreme Court 1993.10.12 Case No. 92Do373 Judgment

281 Munhwa Broadcasting Corporation, 'Korean Air Flight 803 Black Box Recovery [Kim Jong-oh]' (1989) <https://imnews.imbc.com/replay/1989/nwdesk/article/1824901_30389.html> accessed 13 October 2024.

282 *See* also, Section 3.4.2.2 and Supreme Court 1993.10.12 Case No. 92Do373 Judgment: "According to the Convention on International Civil Aviation and its Annex 13, the fundamental purpose of an aircraft accident investigation is to faithfully investigate the cause of an accident to prevent the recurrence of similar accidents in the future. Although there is an obligation, disclosure of accident-related data is not always absolutely prohibited, even according to the wording of Article 5.12 of the above Annex D and Article 4 a) of Annex D, which serves as a reference for the application of its interpretation, and is not always absolutely prohibited, and is subject to the decision of the competent authorities. Accordingly, when it is judged that the need for proper exercise of judicial power outweighs the adverse domestic and foreign impacts of using accident-related data in civil and criminal court proceedings, the data can be disclosed." [translated by the Author] When referring to Standard 5.12, the Court does not differentiate whether the referred 'Article' is a Standard or Recommended Practice.

283 Supreme Court 1990. 9. 11. Sentence 90Do486.

284 Munhwa Broadcasting Corporation of Korea, '14 dead and missing in a tourist helicopter crash between Yeongdeok, Ulleungdo' (1989) <https://imnews.imbc.com/replay/1989/nwdesk/article/1824784_30389.html> accessed 13 October 2024. The defendant, a pilot, was operating a helicopter with 3 crew members and 16 passengers. During the flight from Ulleung Island to Ganggu Heliport, engine No. 1 malfunctioned, and its oil pressure dropped to zero. The pilot attempted to return to Ulleung Island, but by operating the damaged engine at full power, the functioning engine No. 2 was overburdened, leading to further loss of power and difficulty maintaining altitude. The pilot failed to take necessary actions to lighten the aircraft's load or to safely execute an emergency water landing. As a result, the helicopter crashed into the sea due to the pilot's negligence in following emergency procedures.

under Article 187 of the Criminal Act of 1988, criminalising the crashing of an aircraft, and Article 132 of the Aviation Act of 1988, penalising breaching duties of the PIC, including taking the necessary measures to rescue passengers in case of imminent danger.[285]

In this case, the Supreme Court interpreted the concept of 'imminent danger' both objectively and subjectively. On the one hand, objectively, the court defined "imminent danger" as a situation where there is a tangible, immediate risk of the aircraft crashing, overturning, or being destroyed. This level of danger requires the pilot to recognise the situation as critical and act accordingly. On the other hand, subjectively, it involves the pilot's personal recognition of the imminent danger to the aircraft and the potential harm to human life, physical safety, or property. The court found that, despite recognising the dangerous situation, the PIC did not take the necessary steps to ensure passenger safety or prepare for a possible emergency water landing. Therefore, the court ruled the defendant's actions as a violation of the Aviation Act.

4.4.4.3 The case of low-altitude operation of pesticide control aircraft

The defendant, the PIC, as well as the operations manager of a general aviation service provider, conducted aerial pesticide spraying over the Haenam area in Korea on August 11, 2014, despite poor weather conditions, including strong winds and turbulence.[286] The operation required low-altitude flight at around 6 meters high from the ground, posing a risk of sudden downdrafts. According to the court, as a pilot, the defendant had a duty to anticipate such hazards and take precautions to prevent a crash. However, the defendant proceeded with the spraying without adequate precautions, leading to a sudden downdraft that caused the aircraft to crash into a farm embankment and a rice paddy. The defendant was charged with negligence for causing the crash of an aircraft in operation based on Article 160 of the Aviation Act,[287] Article 70(1) and Article 69(2) of the Criminal Act on detention.

Against the prosecution arguing that the PIC failed to exercise due diligence in predicting and responding to the sudden downdraft, which could have been anticipated given the turbulent weather conditions and low-altitude flight, the defendant, the PIC argued based on unforeseeability and inability to avoid the accident. Firstly, the defendant claimed that it was impossible

285 Criminal Law [Enforced on December 31, 1988] [Law No. 4040, December 31, 1988, Partially Amended] art 187 and Aviation Act ([Enacted on March 5, 1988] [Act No. 3996, December 4, 1987, partially amended]) Article 132. Equivalent to the current Article 143 of the Aviation Safety Act.

286 Seoul Central District Court, 2018. 2. 8. Decision 2017No981.

287 Aviation Act [Enforced on January 16, 2015] [Law No. 12817, October 15, 2014, Partially Amended], Article 160. This provision is equivalent to Article 149 of the Aviation Safety Act 2024, discussed in Section 4.5.2.3 of this research.

to predict or detect the downdraft at the accident site due to the lack of advanced equipment or warnings from relevant authorities, thus negating foreseeability. Moreover, the PIC argued that it had followed all necessary safety protocols and that the sudden downdraft gave insufficient time and space to react, particularly at the low altitude required for pesticide spraying.

The court rejected both defence arguments. Evidence from witnesses and the defendant's own statements showed that the defendant was aware of the poor weather conditions, including strong winds and turbulence, yet continued flying. This suggested that the defendant could have anticipated the risk of a downdraft and should have either flown at a higher altitude or postponed the operation. The court found that the defendant's failure to do so constituted negligence, leading to the crash.

4.4.5 Concluding remarks of Section 4.4

The ROK and the other States discussed in Chapter 4 rank highly in terms of the implementation of SARPs laid down in the ICAO Annexes, amongst the highest of all contracting States. The very high degree of implementation of ICAO SARPs contributes to both the safety paradigm, because these SARPs are designed to enhance safety, and to the legal certainty paradigm, because aviation actors, including PICs, can be aware of the applicable rules for navigating their aircraft.

By enacting laws enabling the prosecution of pilots, Korean law is compliant with the obligation under Article 12 of the Chicago Convention (1944). Pursuant to the Korean Aviation Safety Act (2023), pilots may be prosecuted for causing the crash of an aircraft, including by breaching flight rules.

Since case law is somewhat limited, it is not possible to obtain a comprehensive view of what can constitute negligence, giving rise to criminal liability for pilots in the ROK. The court decisions concisely discussed above affirm, however, that negligence may be used to prosecute pilots in the aftermath of an aviation accident or incident.

Case law demonstrates that pilots may be prosecuted on the basis that they have caused injuries and deaths of passengers, as well as damages to the aircraft and infrastructure. In yet other cases, prosecution was based on breaches of applicable flight and manoeuvre rules, in which cases, prosecution was perceived as a tool to promote safety. A further complication in such prosecutions may be that indictments may not adequately represent the complexity of cases as they are not drawn up by aviation professionals but by the public prosecutor, who may not understand fully how to appraise neither the facts and circumstances of an accident nor the implications of violations of aviation rules.

The ROK approach with respect to duties and possibilities in relation to the non-disclosure of records is also reflected in case law. Courts in the ROK consider that the obligation under Standard 5.12 of ICAO Annex 13 does not apply to the admissibility of technical investigation records collected by the investigation authorities of a foreign State. Generally, provisions prohibiting the use of records of accident investigation in criminal proceedings do not have legal force within the legal system of the ROK. These provisions are not aligned with the Standards laid down in ICAO Annex 13, which affects the paradigm of legal certainty because different norms may apply to the same situation.

4.5 Chapter conclusion

Chapter 4 discussed domestic legal regimes governing the criminal liability of pilots. In particular, this chapter considered legislation, the enforcement of applicable safety and criminal provisions, and prosecution in the jurisdictions of the US, the UK, and the ROK.

As mentioned in the introduction to this Chapter, these three jurisdictions actively implement ICAO SARPs in their domestic legal systems. There are only minor differences in the level of effective implementation; the average percentage of the implementation of ICAO SARPs is 93.9%. This is higher than the world average implementation level. However, despite the high level of implementation, none of these States have achieved complete standardisation, which might weaken both the safety and the legal certainty paradigm.

Discussion in this chapter reveals that criminal air law in each of the researched jurisdictions shows the features of a special criminal law, creating a high degree of complexity while confirming the problematic relationship of such special regimes with legal certainty. In each jurisdiction, prosecution can be initiated based on general criminal law or special aviation offences, in both cases, in conjunction with international and domestic air law.

Article 12 of the Chicago Convention (1944) dictates that infringement of flight and manoeuvre rules must be a ground for prosecution. That principle laid down in Article 12 of the Chicago Convention (1944) has not always been applied in the selected jurisdictions. Instead, in practice, harm to human life and/or property has served as reason for prosecution in most cases. In the selected jurisdictions, violations of flight and manoeuvre rules, where they do or do not cause harm to human life and/or property, may lead to administrative sanctions or civil liability rather than prosecution and criminal liability.

Three types of enforcement mechanisms were identified. *Firstly*, prosecution can be initiated by a public prosecutor. *Secondly*, prosecution may be diverted to a special entity, such as the CAA. *Thirdly*, administrative enforcement may be preferred over criminal prosecution, leading to administrative sanctions. Particularly where prosecution is conducted by a general prosecution service, there is a risk that it will be based on insufficient knowledge of the complexity and multifaceted aspects of international civil aviation and the rules governing it, hampering consideration of all factors for indictment. This lack of awareness may also arise when the CAA initiates prosecution, as it must, or may wish to, prioritise public policy considerations, taking into account local factors and domestic regulations, whether related to aviation or not.

This chapter reveals the complexity of the pertinent positive law in the selected jurisdictions, with special reference to the effect of the necessary conjunctions between international and domestic criminal air law, as well as domestic general criminal law, as explained in case law in the selected jurisdictions. Where relevant, I refer to the functioning and interplay of the paradigms engaged in this research therein.

On the basis of my analysis of the case law of the three jurisdictions, I conclude that, next to discernible complexity, all paradigms are, to a certain extent, impacted by the applicable regulations, the facts of concrete cases and court decisions. In short, it would seem that none of the paradigms is dominant. I discuss the findings of this chapter in relation to the complexity of the underlying paradigms and their interrelationships in Chapter 5.

5 Legal certainty, pilots, and collective-subjective foreseeability

5.1 Introduction

5.1.1 Collective-subjective foreseeability

In Chapter 5 of this study, I propose a concept of 'collective-subjective foreseeability' to determine the reasonableness of pilots' conduct. Findings of the previous chapters suggest that pilots often seem to share common professional standards,[1] as supported by the uniform nature of ICAO Annexes. This possibly means that what has been considered a pilot's subjective decision should then be understood as a *collective-subjective* decision based on common professional practices of special norm addresses in a special regulatory domain like international civil aviation.[2]

This approach is additionally enabled by what is called 'airmanship'. Airmanship means "the consistent use of good judgment and well-developed knowledge, skills and attitudes to accomplish flight objectives,"[3] as opposed to bad airmanship, which is "having been decided on individual merits and not on a general principle or recognizing the elements of law, special circumstances, and the human factor as a composite whole."[4] In other words, pilots share collective-subjective opinions on the right course of actions.

The existing literature on the perceptions of pilots towards criminal liability and safety culture provides significant insights into the overall attitudes

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1 *See*, Kern T, *Redefining Airmanship* (McGraw Hill Professional 1997), Foreword.

2 Abeyratne R, 'Negligence of the Aircraft Commander and Bad Airmanship – New Frontiers' 12(1) Air and Space Law 3, 3: Airmanship has been regarded as an indefinable quality and has been used to describe the intuitive faculty of the pilot where he concerns himself with what is right or wrong in the operation of an aircraft which is acquired by sustained experience in flying." *See also*, Abeyratne R, Air Navigation Law (Springer 2012) ch 3; Hopkins HA, 'The Dismissal of a Pilot for Poor Airmanship' (1977) 81 (797) Aeronautical Journal 203, 203.

3 ICAO, *Doc 10011 Manual on Aeroplane Upset Prevention and Recovery Training* (1st edn, 2014) Definition. Dr Kern states that "*[t]his consistency is founded on a cornerstone of uncompromising flight discipline and is developed through systematic skill acquisition and proficiency. A high state of situational awareness completes the airmanship picture and is obtained through knowledge of one's self, aircraft, environment, team and risk." See*, Kern T, *Redefining Airmanship* (McGraw Hill Professional 1997).

4 Abeyratne R, 'Negligence of the Aircraft Commander and Bad Airmanship – New Frontiers' 12(1) Air and Space Law 3, 3.

within the aviation industry. Studies like those conducted by Reader and others reveal a generally favourable safety culture among European pilots,[5] with variations in attitudes based on contract types and operational roles.[6] Similarly, research on pilots' views towards criminal liability indicates a strong reluctance to support it, even in cases of accidents caused by pilot error.[7]

However, these studies do not fully address the extent to which pilots understand the foreseeability and clarity of the legal frameworks governing their actions, particularly in the context of criminal liability under international and domestic law or their own elevated duties in being able to anticipate.

Therefore, it is both timely and necessary to conduct a survey to test the *collective-subjective foreseeability* of the legal framework from the pilots' perspective. Such a survey would enable an understanding of how well pilots can anticipate the legal ramifications of their actions, particularly in scenarios involving potential criminal liability.

By conducting this survey, Chapter 5 aims to bridge the gap identified in existing studies, offering a more nuanced perspective on pilots' understanding of the legal constructs under which they operate. This approach intends not only to add to academic discourse but also to provide valuable insights for policymakers and regulatory bodies in refining the legal instruments that govern aviation safety and pilot accountability.

5.1.2 Hypotheses

The objective of this survey was to test the following two hypotheses:

- The current legal framework and concepts in international civil aviation provide subjective clarity to pilots to build the ground for the collective-subjective clarity; and
- The current legal framework and concepts in international civil aviation provide collective-subjective clarity to pilots.

The first hypothesis concerned the clarity of the legal framework from subjective points of view, and it is tested by testing the pilot's awareness of selected topics.[8] The assumption is that the framework provides clarity if

5 Reader TW, Parand A, and Kirwan B, *D5.4 European Pilots' Perceptions of Safety Culture in European Aviation* (2016) 29.

6 Reader TW, Parand A, and Kirwan B, *D5.4 European Pilots' Perceptions of Safety Culture in European Aviation* (2016) 23. For example, cargo flight pilots were likely to show less positive perception towards safety culture.

7 Winter SR and others, 'A Quantitative Investigation on Criminalization of Airline Pilots: Consumer and Pilot Perspectives' (2020) 130 Safety Science Section 4.3

8 *See*, Section 5.3.

pilots claim they are aware of the existing legal framework of their relevant jurisdiction. The respondents were asked to present their awareness using five scales: not at all aware, slightly aware, somewhat aware, moderately aware, and extremely aware. The test result of the first hypothesis was the basis to test the collective-subjective clarity of the existing legal framework.

This survey intentionally did not define 'awareness' to avoid influencing respondents' answers. This is based on the recognition that the term may carry different connotations based on the national and organisational cultures shaping pilots' behaviours. By allowing respondents to rely on their personal understanding of 'awareness', the survey aimed to capture baseline knowledge and uncover the range of interpretations people hold, providing insights into diverse perspectives.

5.1.3 Questionnaire items

To achieve the objective above, I composed questions for this survey based on ICAO SARPs and preliminary research of Article 12 of the Chicago Convention (1944).[9] The table below briefly shows the category, topics of the questions, and number of questions asked.

Category	**Topics of the question**	**Number of questions**
Safety	Perception on safety	2
The legal status of pilots	Licensing of pilots	3
	Authorities and responsibilities of the pilot-in-command	5
Criminal liability in the existing international legal framework	Prosecution	2
	Just Culture	7
	Safety Management[10]	6 (including four open questions)
Case studies	Case study 1: Hudson River case	5 (including one open question)
	Case study 2: San Francisco Case	5 (including one open question)
	Case study 3: Pakistan Case	8 (including one open question)
Demographics and formalities		21
Total Number of questions		64

Table 1 Overview of survey questions

9 Section 5.3.

10 *See* Section 3.4.2 of on safety management. *See also*, *Annex 19 Safety Management* (2nd edn, 2016).

The survey tested the hypotheses indicated in Section 5.1.2 through multiple questions using different formats.

In the first stage, pilots were requested to provide their perception of theories and definitions of topics related to criminal liability, which are based on relevant ICAO SARPs. Specifically, the issues pertained to aviation safety,[11] the legal status of pilots,[12] criminal liability frameworks on pilots,[13] and safety management.[14]

The second stage of the survey requested pilots to provide their views on the practical side of the theoretical questions in the first stage by exploring three distinctive case studies.

Section 5.3 reports the complete list of questions.

5.2 Survey methodology

5.2.1 Data collection

The survey was released and distributed between October 2020 and March 2021 via LinkedIn, pilot communities, and e-mail.

The survey questions and responses were collected on the Qualtrics digital platform licensed by Leiden University.

This survey contains three methodologies: Likert scale, open, and multiple-choice questions.

The Likert scale is utilised to gauge the level of knowledge and awareness or agreement on the criminal liability of pilots. Examples of the possible options pilots could choose based on the Likert scale are as follows:

- Question: Are you aware of the statement?
- Answers:
  - Not at all aware
  - Slightly aware
  - Somewhat aware
  - Moderately aware
  - Extremely aware
- Questions: Do you agree with this pilot's decision?

11 Sections 5.3.2 and 5.4.2.
12 Sections 5.3.3 and 5.4.3.
13 Sections 5.3.4 and 5.4.4.
14 Sections 5.3.4 and 5.4.4.

- Answers:
  - Strongly disagree
  - Somewhat disagree
  - Neither agree nor disagree
  - Somewhat agree
  - Strongly agree

The multiple-choice questions are posed to collect a collective-subjective understanding of pilots on specific topics. Examples of a question and options are as follows:

- If you agree that the pilots in the above case should be punished, what should be the charge?
  - Wilful violation
  - Destructive act
  - No opinion on uncertain
  - None of the above (please specify)

In the event that pilots wished to provide more insights into questions, they were offered the opportunity to do so in the form of a note.

5.2.2 Participants

The survey collected typological and demographic information of pilots who consented to participate in this survey.[15] Among 121 pilots who initiated the survey, 44, whom I refer to as the 'respondent(s)' below, completed the survey.

5.2.3 Demographics of the participants

This survey collected demographical information, including the age, types of license, position as a pilot, the number of flying hours, main operating fleet, the types of operators that employed the relevant pilot, location of employment, and the nationality of respondents.

5.2.3.1 Age of the respondents

The age categories were selected to capture a comprehensive view of the demographic spread among survey participants. The following chart shows the age distribution of respondents.

15 Consent was obtained through the introduction of the survey.

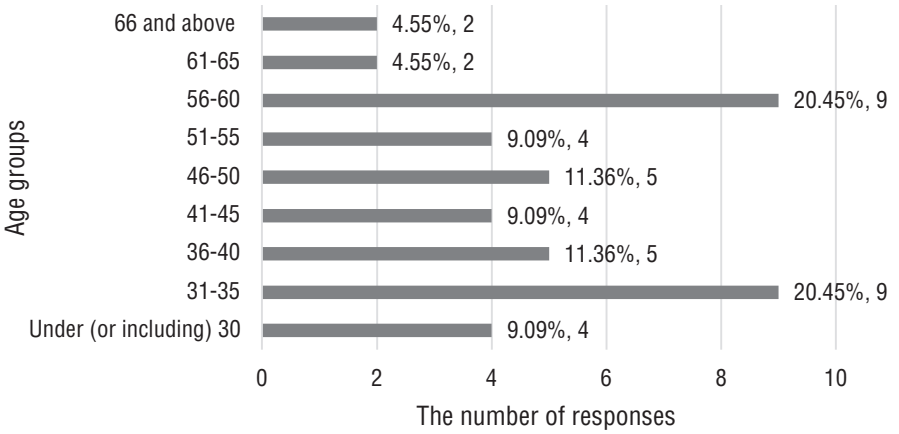

Figure 5 Age of the respondents

91% of the respondents represent the age group between 31-60.

5.2.3.2 Types of license

The survey collected the types of license(s) respondents hold, among private pilot license (PPL), commercial pilot license (CPL), multi-crew pilot license (MCPL), and air transport pilot license (ATPL). The different types of licenses present different requirements for a candidate to fulfil. Also, while 40 flight hours are required for a candidate to obtain the PPL,[16] next to fulfilling other requirements, an ATPL holder should present 1500 or more flight hours.[17] The ATPL holders are the most experienced pilots.

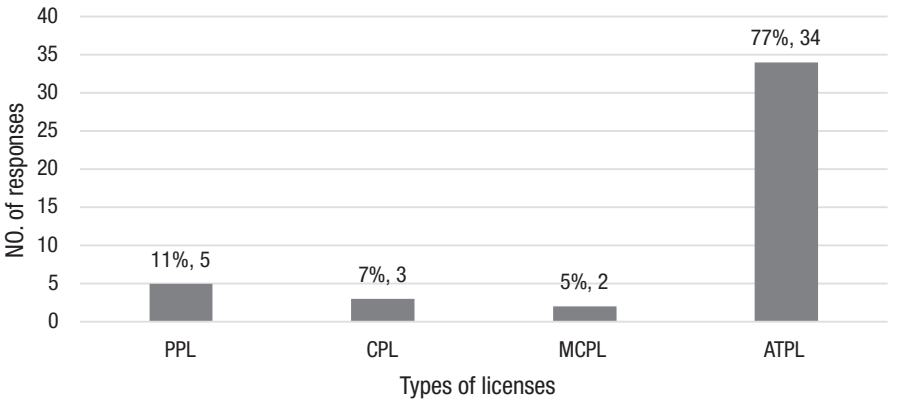

Figure 6 Types of licenses

16 ICAO, *Annex 1 Personnel Licensing* (14th edn, 2022) section 2.3.
17 ICAO, *Annex 1 Personnel Licensing* (14th edn, 2022) section 2.6.

Thirty-four respondents, or 72,27% of the total respondents, are ATPL holders in this survey. This means that the survey results present the views of experienced pilots.

5.2.3.3 Position as a pilot

All respondents are either the PIC or co-pilot.

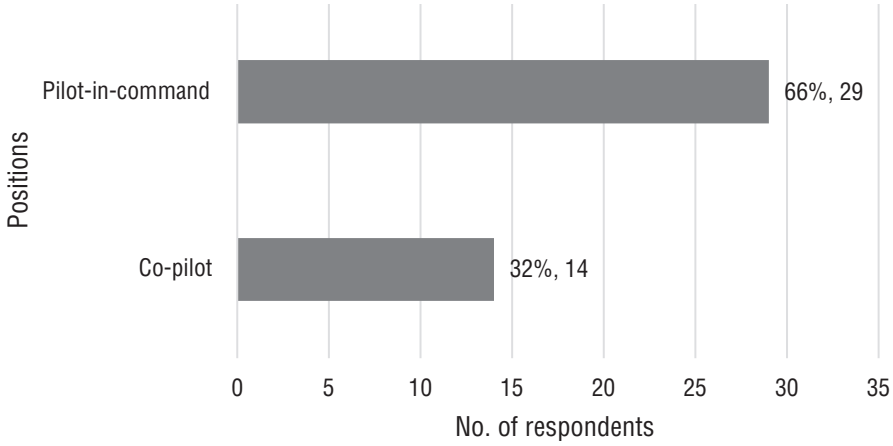

Figure 7 Positions of the respondents

About 31% of the respondents reported they were co-pilots, while 65% reported their PIC position.[18] As Section 1.1.2. above explains that the PIC's responsibilities weigh more than those of the co-pilots. Therefore, the survey results present responses from those who hold heavier responsibilities.[19]

5.2.3.4 Number of flight hours

The simplest way to examine one's experience as a pilot is to count the number of flight hours. The number of flight hours of the respondents in this research is as follows:

18 One of the respondents mentioned he/she is a senior first officer, which in this research is included as a co-pilot.

19 *See also* Section 1.1.3. of the main research explaining the qualifications a PIC at an airline must hold.

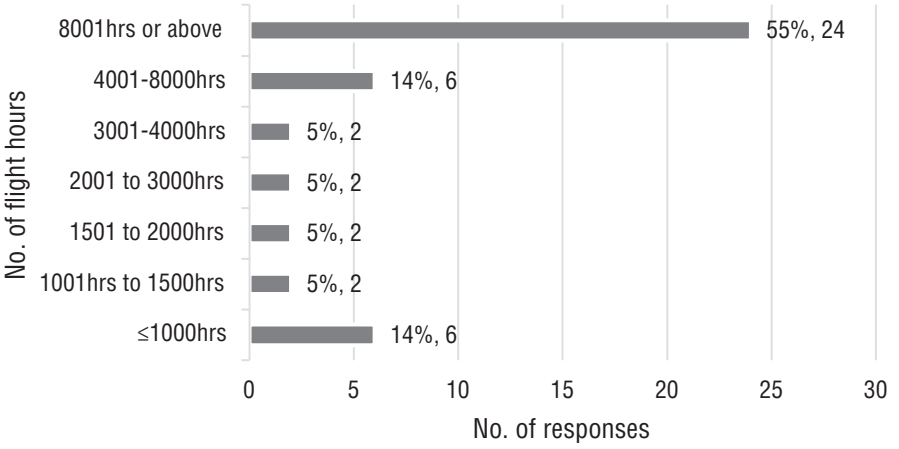

Figure 8 Flight hours

More than half of the respondents reported flying for more than 8,001 hours. A few respondents specifically pointed out that they flew beyond these hours, namely 15.000, 17.000, 18.000, and 23,000 hours. This emphasises the rich flight experience of most respondents, enough to build a collective-subjective foreseeability.

5.2.3.5 Types of the organisations

The respondents have experience working at full-service carriers, low-cost carriers, or other organisations.

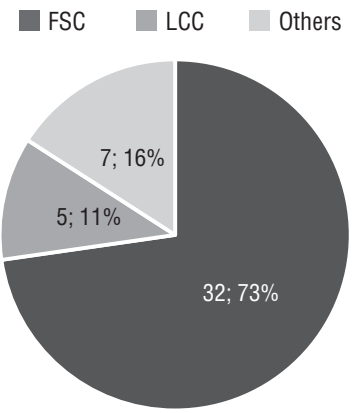

Figure 9 Organisations

Thirty-two respondents, 73%, have work experience or are currently working at full-service carriers, while the rest have work experience at the LCC

or other organisations.[20] Therefore, this survey result primarily represents the view of full-service carrier pilots.

5.2.3.6 Place of employment

The survey collected the location of employment. This is mainly because various factors influence the organisational and safety cultures. Clearly, the cultural factors of each State are some of the influencing factors.[21] Therefore, next to the nationality of the respondents below,[22] this study first collected the placement of the employment of respondents.

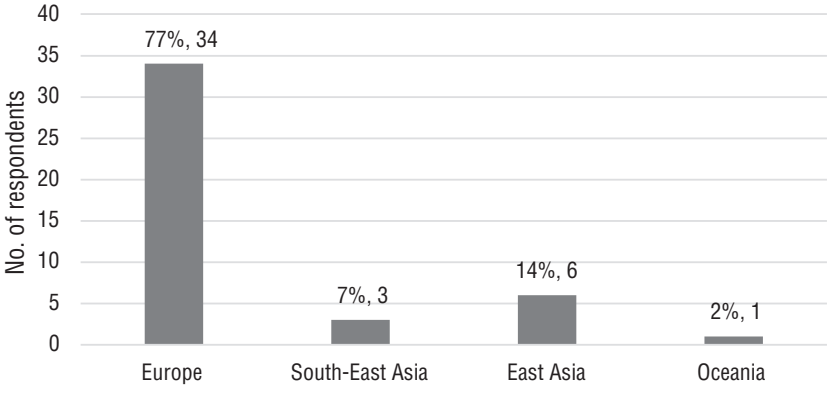

Figure 10 Place of employment

The respondents reported their employment locations in Europe, East Asia, South-East Asia, and Oceania. 77% of the respondents were employed in Europe before and during the survey. Therefore, the result represents the views of pilots employed in Europe the most.

5.2.3.7 Nationality of the respondents

The survey respondents are from North America, Europe, South-East Asia, Africa, and Oceania.

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20 Respondents under the "others" section have work experiences at training organisations, research institutes, and manufacturers or are not employed as a pilot but work outside the aviation industry.

21 *See*, Noort MC and others, 'The Relationship between National Culture and Safety Culture: Implications for International Safety Culture Assessments' (2016) 89(3) Journal of Occupational and Organizational Psychology 515, 516; Patterson IR, 'Organisational Culture and Safety Culture as Determinants of Error and Safety Levels in Aviation Maintenance Organisations: A Latent Failure Approach' (PhD thesis, Massey University 2002) 20; Maurino DE, 'Foreword' in Helmreich RL and Merritt AC (eds), *Culture at Work in Aviation and Medicine* (1998) xiv.

22 Section 5.2.3.7.

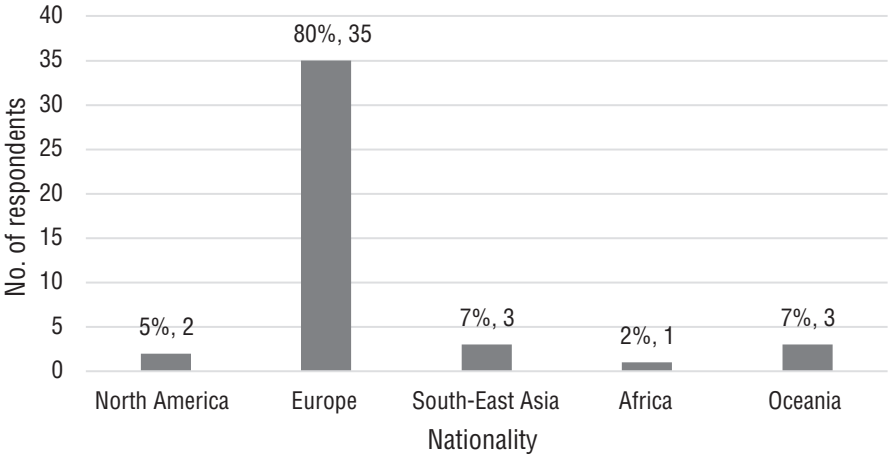

Figure 11 Respondent nationality

As the Figure above shows, 35 respondents, or 79.5% of the respondents, hold European nationality. Therefore, these survey results represent the view of pilots with European nationals the most.

5.3 Survey Questions

5.3.1 Overview

Among 43 questions, 25 requested pilots to share their level of knowledge and perception of the legal status of pilots, which includes licenses, responsibilities, authorities, prosecution, and Just Culture. A few sections are also composed based on three selected accident cases, where three questions demanded written opinions of the respondents. The following table shares a brief overview of the topics that require pilots' views.

5.3.2 Aviation safety

On aviation safety, the survey posed the following two statements:

- *Safety is the core value which the aviation community has agreed to protect.*[23]

23 The source of this statement is interviews with safety experts as well as Preamble of the Chicago Convention (1944).

- *Aviation safety is "the state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management."*[24]

Respondents were requested to indicate their level of awareness in five different levels.[25]

5.3.3 Legal status of pilots

Questions under this topic are related to the legal status of pilots with a specific focus on the licensing mechanism and the authorities and responsibilities of the pilot-in-command. In all questions, respondents were requested to indicate their level of awareness at five different levels.[26]

Under licensing, the three questions below were asked.

- *An aircraft pilot is "a licensed pilot serving in any piloting capacity other than as pilot in command but excluding a pilot who is onboard the aircraft for the sole purpose of receiving flight instruction."*[27]
- *The license of the pilot is used on an aircraft which is registered in the State which has issued or validated the license.*[28]
- *If the license of the pilot is to be used on an aircraft which is not registered in the issuing State of the license, the pilot must obtain a validation of the license from the State of Registry of the aircraft, or alternatively obtain a new license issued by the State of Registry.*[29]

Questions under the authorities and responsibilities of the PIC requested pilots to share the level of awareness of the following five statements from ICAO Annex 2.

- *The pilot-in-command is "the pilot designated by the operator, or in the case of general aviation, the owner as being in command and charged with the safe conduct of a flight."*[30]
- *The responsibility of the pilot-in-command is to comply with the rules of the air regardless of whether they are manipulating the controls or not.*[31]
- *The pilot-in-command may depart from the rules of the air in circumstances that render such departure absolutely necessary in the interest of safety.*[32]

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24 This is the formal definition of aviation safety. While within the definitions there are concepts which also require classifications, i.e. acceptable level of safety, subjective level of awareness towards this definition reflects the understanding of pilots on aviation safety.
25 Not at all aware, slightly aware, somewhat aware, moderately aware, and extremely aware.
26 Not at all aware, slightly aware, somewhat aware, moderately aware, and extremely aware.
27 ICAO, *Annex 1 Personnel Licensing* (13th edn, 2020), Definition.
28 Chicago Convention (1944), art 32.
29 Chicago Convention (1944), arts 31, 32, and 33.
30 ICAO, *Annex 2 Rules of the Air* (10th edn, 2005), Definition.
31 ICAO, *Annex 2 Rules of the Air* (10th edn, 2005), Standard 2.3.1. In this statement, I did not specify what the "rules of the air" in this statement refer to.
32 ICAO, *Annex 2 Rules of the Air* (10th edn, 2005), Standard 2.3.1.

- *The pilot-in-command should be familiar with all available information appropriate to the intended operation of the aircraft as a pre-flight action. This includes a careful study of available current weather reports and forecasts, fuel requirements and potential problems and resolutions of the current operation.*[33]
- *The pilot-in-command has the final authority as to the disposition of the aircraft while in command.* [34]

5.3.4 Existing international legal frameworks on criminal liability of pilots

As the introduction to this research briefly mentions, there are two approaches in aviation towards criminal liability: prosecution and Just Culture. Based on the very cursory look into Article 12 of the Chicago Convention (1944), the Just Culture principle as perceived by EUROCONTROL, and ICAO Annexes 2 and 13, I created the following statements:

- *ICAO Member States are obliged to undertake to ensure the prosecution of pilots violating rules of the air provided in ICAO Annexes.*[35]
- *The prosecution of pilots is dependent on the national law of each Member States of ICAO and there is no universally applicable scheme for the prosecution.*[36]
- *Just Culture is a "culture in which front-line operators and others are not punished for actions, omissions or decisions taken by them, which are commensurate with their experience and training, but where gross negligence, wilful violations and destructive acts are not tolerated."*[37]

The goal of this particular section was to determine the approach pilots are more familiar with, which adds to the foreseeability. Respondents were requested to indicate their level of awareness in five different levels.[38]

After the set of questions to the awareness of specific knowledge on prosecution and Just Culture, the respondents were asked to provide their opinions on the following statements:

- *Pilot errors are one of the important causes of aviation accidents and incidents.*[39]
- *As a pilot, I am more familiar with 'the just culture approach', than with the 'criminalization and prosecution', in aviation accident and incident cases.*[40]
- *The sole purpose of aviation accident or incident investigations is the prevention of such accidents or incidents, but not the apportionment of blame or liability.*[41]

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33 ICAO, *Annex 2 Rules of the Air* (10th edn, 2005), Standard 2.3.2.
34 ICAO, *Annex 2 Rules of the Air* (10th edn, 2005), Standard 2.4.
35 Rephrased from Article 12 of the Chicago Convention (1944).
36 Statement created by the author of this study based on the domestic character of criminal law.
37 Definition of Just Culture created by Eurocontrol. *See*, in comparison, Section 1.4.5.
38 Strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, strongly disagree.
39 Statement composed by the author.
40 Statement composed by the author.
41 ICAO, *Annex 13 Aviation Incident and Accident Investigation* (12th edn, 2020) Standard 3.1.

Respondents were requested to indicate their level of agreement in five different levels.[42]

- *How well do you know what constitutes 'gross negligence'?*
- *How well do you know what constitutes a 'wilful violation'?*
- *How well do you know what constitutes a 'destructive act'?*

Respondents were requested to indicate their level of knowledge in five different levels.[43]

5.3.5 Case study

5.3.5.1 Case study 1

The first case concerns an Airbus 320 of US Airways flight N106US, which landed on the Hudson River on 15 January 2009. According to the investigation report,[44] the plane collided with a formation of Canada geese while flying from LaGuardia Airport in New York City to Charlotte-Douglas International Airport in North Carolina.[45] As a result of this, both engines were damaged at an altitude of 3000 feet.[46] Although the captain was told to land at the closest airport, which is Teterboro Airport,[47] the captain, or a PIC, disobeyed and brought the aircraft down on the frozen Hudson River, which was 8,5 miles away from LaGuardia Airport.[48] The investigation report stated that the probable cause of the accident was a 'bird strike' that caused the loss of both engines.[49]

This case is particularly interesting not only because it was featured in a film ('Sully') but also because there were no fatalities, which changed the qualification of the accident. If fatalities had occurred during the landing, it could have been understood as a crash on the water. One of the leading probable causes could also have been a human error, the NTSB's initial

42 Strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, strongly agree.

43 Not at all aware, slightly aware, somewhat aware, moderately aware, and extremely aware.

44 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) (hereinafter the 'Hudson River Case Report').

45 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) 80.

46 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) 10.

47 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) 3.

48 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) 1.

49 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) 123.

appraisal indeed being that the captain "chose to land in the water."[50] The NTSB believed the crew members had other options than landing on the water.[51] Because there were no fatalities, however, the accident was labelled as a "ditching," which is a "planned event in which the flight crew, with the aircraft under control, knowingly attempts to land in the water."[52]

However, following the testimony of the PIC, the view on the accident changed. The PIC said that landing on the river was the only "viable option" because of several difficulties.[53] One of these difficulties was the lack of time to complete relevant checklists to confirm the engine failures or to attempt ditching.[54] In principle, failure to complete the relevant checklists would be a violation of the *rules of the air*. Despite failing to complete the checklist, the PIC still started the auxiliary power unit.[55] The investigation report supports that the decision to do so improved the outcome of the landing on the river, as it ensured the primary source of electrical power for the aircraft.[56] The investigation also reports that the landing on the Hudson River provided the highest probability of survival.[57] Therefore, the NTSB conclusion was that this accident was an unplanned "forced landing" instead of a "ditching."[58]

Ultimately, the case has become a heroic story of the PIC who made the right decision in a very short amount of time, only a few seconds.

After reading the description of Case Study 1 explained above, the respondents were asked to provide their views on the topic.

> *"On January 15, 2009, Airbus A320 (N106US US Airway 1549) experienced an almost complete loss of thrust in both engines due to a bird strike. Upon the judgment of the pilot-in-command, the aircraft ditched on the Hudson River about 8.5 miles from*

50 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) 129.
51 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) 129.
52 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) 129.
53 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) 131.
54 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) 54 and 130.
55 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) 2.
56 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) 88.
57 NTSB, *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River US Airways Flight 1549* (2010) 89.
58 However, in the survey question refers to the accident as 'ditching' to reflect the technical investigation report.

> *LaGuardia Airport, New York. Although the airplane was substantially damaged, only one flight attendant and four passengers were seriously injured.*
> *Followed by a bird strike, the pilots asked air traffic controllers for landing options at Teterboro Airport.*
>
> *Although the permission was given, the captain, who initially responded positively, decided to land in the Hudson River."*[59]

The survey presented the following questions:

- *Do you agree with this pilot's decision?*
- *If the pilot's decision to attempt an emergency landing on the river had led to an accident with higher fatalities, would you agree that the pilot deserves to be punished for his actions?*[60]
- *If there had been higher fatalities and if you agreed that the pilot should be punished, what would be the charge?*

Pilots could choose the degree of agreement, in scale, between 'strongly disagree' and 'strongly agree'. Moreover, pilots were also asked to provide their views on the charges brought against pilots in the Hudson River case and whether they agreed on punishment or not.

5.3.5.2 Case study 2

The second case regards a Boeing 777-200ER of Asiana Airlines flight HL7742, which crashed on the final approach to the ground at San Francisco International Airport on July 7, 2013.[61] A hull loss occurred with the three reported deaths.[62]

According to the investigation report of the NTSB,[63] the probable cause was the flight crew's mismanagement of descent using the automation system during the approach.[64] Unintended deactivation of automatic speed control and inadequate monitoring of airspace were part of this mismanagement.[65]

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59 Statement created by the author of this research based on the accident investigation report.

60 According to the accident investigation report, this accident did not cause any fatalities. However, the survey question still refers to 'higher fatalities' meaning any fatality.

61 NTSB, *Descent Below Visual Glidepath and Impact With Seawall Asiana Airlines Flight 214 (NTSB/AAR-14/01, PB2014-105984)* (NTSB 2014).

62 NTSB, *Descent Below Visual Glidepath and Impact With Seawall Asiana Airlines Flight 214 (NTSB/AAR-14/01, PB2014-105984)* (NTSB 2014) 1.

63 NTSB, *Descent Below Visual Glidepath and Impact With Seawall Asiana Airlines Flight 214 (NTSB/AAR-14/01, PB2014-105984)* (NTSB 2014) 129.

64 NTSB, *Descent Below Visual Glidepath and Impact With Seawall Asiana Airlines Flight 214 (NTSB/AAR-14/01, PB2014-105984)* (NTSB 2014) xv.

65 NTSB, *Descent Below Visual Glidepath and Impact With Seawall Asiana Airlines Flight 214 (NTSB/AAR-14/01, PB2014-105984)* (NTSB 2014) vx.

When the pilot realised that the aircraft was "below acceptable glidepath and airspeed tolerances,"[66] it was too late to execute a go-around properly. The NTSB also found that the manufacturer's documentation and the airline's pilot training did not reflect the complex features of the autothrottle and autopilot system.[67] The flight crew's communication and coordination were also not standard,[68] and it was observed that training must have been inadequate.[69] Pilot fatigue was also one of the factors which degraded the performance of pilots. [70]

The opinion of the Korean AAIB, hereinafter the 'KAAIB,' was slightly different from that of the NTSB. While the AAIB found that pilot error did play a role in this accident causation,[71] it emphasised that the NTSB should have investigated Boeing's automation system in more depth as a probable cause.[72] The discrepancy in the analysis of these two organisations challenged the Ministry of Transport in Korea, which decided to employ administrative sanctions against the operator based on the opinions of both NTSB and KAAIB.[73]

The following background was provided to the pilots.

> *"On July 6, 2013, Boeing 777-200ER (HL7742 Asiana Airlines flight 214) was destroyed by impact forces and a post-crash fire during the approach to runway 28L at San Francisco International Airport, California, US.*
> *The pilots judged that the approach was unstable. While continuing the descent, it became even more unstable and the airspeed got slower. The decreasing trend in airspeed continued, and at about 200 ft the flight crew became aware of the low airspeed and low*

66 NTSB, *Descent Below Visual Glidepath and Impact With Seawall Asiana Airlines Flight 214 (NTSB/AAR-14/01, PB2014-105984)* (NTSB 2014) vx.
67 NTSB, *Descent Below Visual Glidepath and Impact With Seawall Asiana Airlines Flight 214 (NTSB/AAR-14/01, PB2014-105984)* (NTSB 2014) xv.
68 NTSB, *Descent Below Visual Glidepath and Impact With Seawall Asiana Airlines Flight 214 (NTSB/AAR-14/01, PB2014-105984)* (NTSB 2014) 47.
69 NTSB, *Descent Below Visual Glidepath and Impact With Seawall Asiana Airlines Flight 214 (NTSB/AAR-14/01, PB2014-105984)* (NTSB 2014) xv.
70 NTSB, *Descent Below Visual Glidepath and Impact With Seawall Asiana Airlines Flight 214 (NTSB/AAR-14/01, PB2014-105984)* (NTSB 2014) 85-87.
71 NTSB, *Descent Below Visual Glidepath and Impact With Seawall Asiana Airlines Flight 214 (NTSB/AAR-14/01, PB2014-105984)* (NTSB 2014) 183.
72 NTSB, *Descent Below Visual Glidepath and Impact With Seawall Asiana Airlines Flight 214 (NTSB/AAR-14/01, PB2014-105984)* (NTSB 2014) 183.
73 Supreme Court Decided on October 17, 2019, Decision 2017Du47045 [Cancellation of flight suspension order]. The ruling of the Supreme Court dismissed the appeal of Asiana Airlines as a plaintiff, by stating that the "The plaintiff was negligent in taking reasonable care regarding the pilot's training related to the flight in this case; Sufficient education and training to prevent aircraft accidents was not provided to aviation workers, and the violation of the plaintiff's duty of care as described above was the cause of the accident in this case" based on Article 115-3(1) subparagraph 45 of Aviation Act of Korea [Enforced September 30, 2016] [Act No. 14114, March 29, 2016, partially revised].

> *path conditions but did not initiate a goaround until the airplane was below 100 ft. In the end, the airplane crashed and struck the seawall.*
> *The National Transportation Safety Board (NTSB) determined that the probable cause of this accident was the flight crew's mismanagement of the airplane's descent during the visual approach, the PF's unintended deactivation of automatic airspeed control, the flight crew's inadequate monitoring of airspeed, and the flight crew's delayed execution of a go-around after they became aware that the airplane was below acceptable glide path and airspeed tolerances.*
> *Contributing to the accident were (1) the complexities of the autothrottle and autopilot flight director systems that were inadequately described in Boeing's documentation and Asiana's pilot training, which increased the likelihood of mode error; (2) the flight crew's nonstandard communication and coordination regarding the use of the autothrottle and autopilot flight director systems; (3) the PF's inadequate training on the planning and execution of visual approaches; (4) the PM/instructor pilot's inadequate supervision of the PF; and (5) flight crew fatigue, which likely degraded their performance."*[74]

Based on the above, pilots were requested to respond to the following questions:

- *Do you agree with the decision of the pilots?*
- *Do you agree that the pilots in the above case should be punished for their actions?*
- *If you agree that the pilots in the above case should be punished, what should be the charge?*

5.3.5.3 Case study 3

The third case is about the Airbus 320 of the Pakistan International Airlines flight AP-BLD, which landed in a populated area of Jinnah International Airport in Karachi on 22 May 2020. Following are the extracts from the preliminary accident investigation report:

> *"At 14:35 hrs the aircraft performed an ILS approach for runway 25L and touched down without landing gears. Both engines scrubbed the runway at high speed. Flight crew initiated a go-around and informed "Karachi Approach" that they intend to make a second approach. About four minutes later, during downwind leg, at an altitude of around 2000 ft, flight crew declared an emergency and stated that both engines had failed. The aircraft started losing altitude. It crashed in a populated area, short of runway 25L by about 1340 meters (Lat: 24"54'42.07 Long: 67"11'18.99). An immediate subsequent post impact fire initiated. Out of 99 souls onboard, 97 were fatally injured and 02 passengers survived. On ground 04 persons were injured however 01 out of these reportedly expired later at a hospital."* [75]

Although the accident occurred in 2020, the official investigation report was released in April 2023. Therefore, the survey questions included information from the initial report and interim statements from the Pakistan Aviation Accident Investigation Bureau that have been disclosed in 2020.

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74 Statements created by the author based on the technical investigation report.
75 Pakistan AAIB, *Preliminary Report: Crash of PIA AP-BLD 22 May 2020* (2020) 1.

In Case study 3, I was attentive to the potential breach of Just Culture and non-disclosure of information.[76] With the release of the initial report, which concerns further steps to take for adequate investigation, the Ministry of Transport in Pakistan disclosed the communication in the cockpit at the press conference.[77] The conversation was not related to the operation of the aircraft. The minister claimed that the pilots were distracted and preoccupied,[78] which led to a considerable amount of criticism of the trustworthiness and blaming of the pilots.

The minister also inadvertently blamed pilots with his wording. Part of the claim was that the pilots were "over-confident."[79] The initial report did not contain the pilots' conversation and provided only the fact that pilots did not follow proper procedures.[80] Disposing of information unmentioned in the initial report has created further suspicion among the pilots, which does not help build a healthy safety culture, which is the aim of Just Culture.

Another safety concern was also revealed during this conference. To Pakistan's National Assembly, the minister shared that 262 out of 860 active civilian pilots are not qualified and do not have the required flying experience.[81] These 860 pilots were serving airlines that fly from/to Pakistan, including PIA.[82] The 'fake' license holders were suspended from flying with immediate effects.[83] The Minister further did not share if the pilots killed in the accident were unqualified license holders or not.[84]

Based on the interpretations above, the pilots were provided with the case below:

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76 *See* Section 3.4.2.2.

77 Shahzad A, 'Pilots in Pakistan Air Crash Distracted by Coronavirus Worry, Minister Says' Reuters <https://www.reuters.com/article/us-pakistan-airplane-crash-idUSKBN-23V11Y> accessed 13 October 2024.

78 Shahzad A, 'Pilots in Pakistan Air Crash Distracted by Coronavirus Worry, Minister Says' Reuters <https://www.reuters.com/article/us-pakistan-airplane-crash-idUSKBN-23V11Y> accessed 13 October 2024.

79 BBC News, 'Pakistan Plane Crash was 'Human Error' – Initial Report'(24 June 2020) <https://www.bbc.com/news/world-asia-53162627> accessed 13 October 2024.

80 Pakistan AAIB, *Preliminary Report: Crash of PIA AP-BLD 22 May 2020* (2020) 11.

81 Saifi S and Gan N, 'Almost 1 in 3 Pilots in Pakistan Have Fake Licenses, Aviation Minister Says' BBC Business (June 25, 2020) <https://edition.cnn.com/2020/06/25/business/pakistan-fake-pilot-intl-hnk/index.html> accessed 13 October 2024.

82 Saifi S and Gan N, 'Almost 1 in 3 Pilots in Pakistan Have Fake Licenses, Aviation Minister Says' *BBC Business* (June 25, 2020) <https://edition.cnn.com/2020/06/25/business/pakistan-fake-pilot-intl-hnk/index.html> accessed 13 October 2024.

83 Saifi S and Gan N, 'Almost 1 in 3 Pilots in Pakistan Have Fake Licenses, Aviation Minister Says' *BBC Business* (June 25, 2020) <https://edition.cnn.com/2020/06/25/business/pakistan-fake-pilot-intl-hnk/index.html> accessed 13 October 2024.

84 According to the final report published in 2023, however, the PIC and First Officer were both certified and qualified according to the applicable regulations. See, Pakistan AAIB, *Accident of Pakistan International Airlines Flight PIA 8303 AIRBUS A320-214 Aircraft Registration Number AP-BLD Crashed near Jinnah International Airport Karachi on 22nd May, 2020* (2023).

> *"On May 22, 2020, Airbus A320-214 (AP-BLD Pakistan International Airlines aircraft PK8303) crashed at Jinnah International Airport, Karachi, Pakistan during the landing. The reported fatalities onboard were 97 including two pilots and six flight attendants. While performing a high speed unstabilised ILS approach, the aircraft touched down on engines, without the landing gear, which pilots failed to deploy. At the second attempt to landing, the air traffic controller failed to inform the pilot that the engines had been damaged. Due to the failure of the engines, the aircraft crashed in a residential area. Later, by the Minister for Civil Aviation in Pakistan, it was presented that the pilots were overconfident and unfocused discussing COVID-19. Also, pilots were ignoring directions from the air traffic controller. Finally, the minister suggested that almost 1/3 pilots in Pakistan have fake license."*[85]

After this statement, pilots were requested to respond to the following questions:

- *Do you agree with the decision of the pilots to land?*
- *Do you agree that the pilots in the above case should be punished for being overconfident?*
- *If you agree that the pilots in the above case should be punished, what should be the charge?*
- *Do you agree with the Minister's decision to dispose the communication between the pilots and air traffic controllers to the media?*
- *Do you agree that the government of Pakistan is criminally liable for this accident with regards to the pilot licence and air traffic management?*[86]
- *Do you agree that the airline is criminally liable for this accident based on the management of their pilots?*

5.4 Survey result

5.4.1 Overview

This section presents the survey results in two ways. Each section contains charts presenting the responses collected and accompanying texts explaining the survey results.

5.4.2 Aviation Safety – Collective goods and interests

In this set of questions, all pilots responded that they are more than moderately aware of the statement claiming that safety is the core value of international civil aviation and the definition of aviation safety provided by ICAO.

85 Composed by the author based on the preliminary investigation report.

86 Governments, in principle, cannot be held criminally liable but responsible. However, this question was not an error but presented intentionally to test the views of pilots, who are not always legal experts, in a rather simple manner.

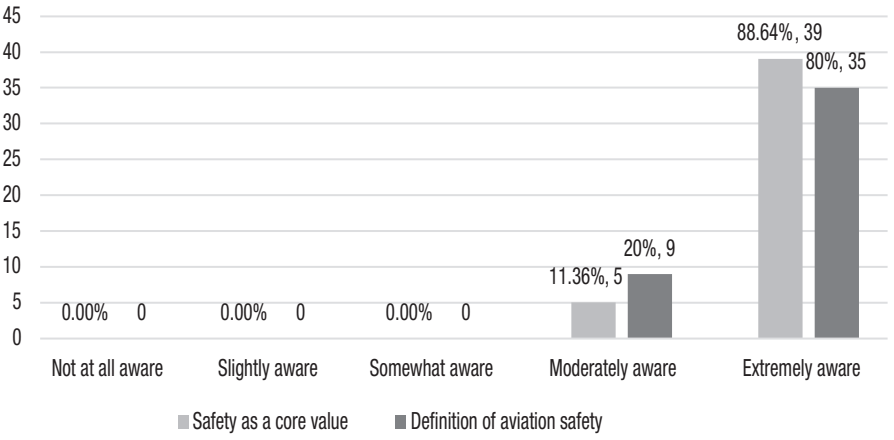

Figure 12 Awareness of aviation safety

There is a strong level of awareness regarding "Safety as a core value" and "definition of aviation safety", with the majority being extremely aware. This suggests that pilots are well-informed about the importance of safety in aviation. The result presented in Figure 12 above indicates a high level of collective-subjective clarity among the respondents regarding the concept of safety in aviation.

5.4.3 Legal status of pilots – Special norm addressee

5.4.3.1 Overview of the category

Questions under this category are related to the legal status of pilots. More specifically, the legal status is associated with the duty of pilots to protect safety and the role of a license to test the competence of pilots to complete their duty.

5.4.3.2 License

The following presents an overview of pilots' responses in Figure 13 regarding their awareness of pilot licensing.

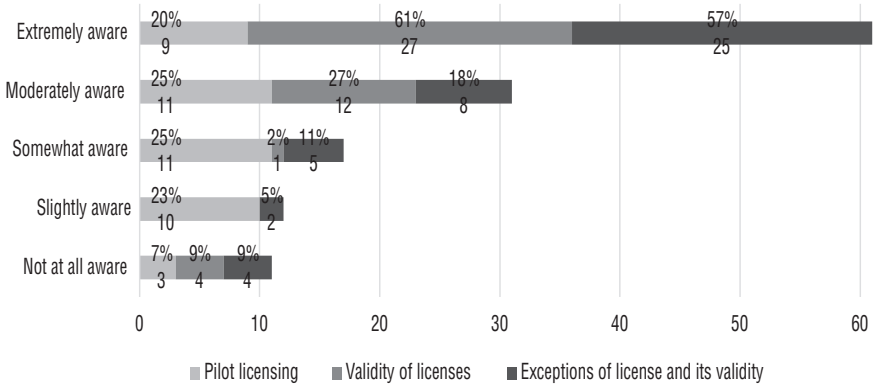

Figure 13 Awareness of pilot licensing

Figure 13 shows different levels of awareness among the respondents on their licensing mechanism. There is only a small number of respondents (7-9%) who are not at all aware of their licensing criteria across all three aspects. Yet, a larger percentage of respondents are "extremely aware," especially over the validity of their licenses in the State of Registry. Notably, the fewest pilots asserted that they were entirely unaware of the definition, which specifies that "[a]n aircraft pilot is 'a licensed pilot serving in any piloting capacity other than as pilot in command but excluding a pilot who is onboard the aircraft for the sole purpose of receiving flight instruction.'"[87]

Regarding subjective clarity, the highest awareness levels are found in "Validity of licenses" and "Exceptions of license and its validity." This suggests that respondents are most familiar with the operational aspects of their licenses, particularly when and where they can use them legally. This might reflect a strong understanding of international regulations as well as the practical necessities of compliance with different jurisdictions' rules. The slightly lower awareness levels in "Pilot licensing" might be because the general concept is broader, while the other two categories deal with more practical and immediate concerns.

Concerning collective-subjective clarity, the majority of respondents are extremely or moderately aware of "Validity of licenses" and "Exceptions of license and its validity." This indicates a collective understanding in these areas. This suggests that the legal framework and training mechanisms under ICAO Annex 1 are effective in providing clarity to pilots on these aspects.

87 Section 5.3.3.

5.4.3.3 *Responsibilities and authorities of the pilot-in-command*

The Figure below presents the level of awareness regarding various legal aspects and responsibilities of the PIC.[88]

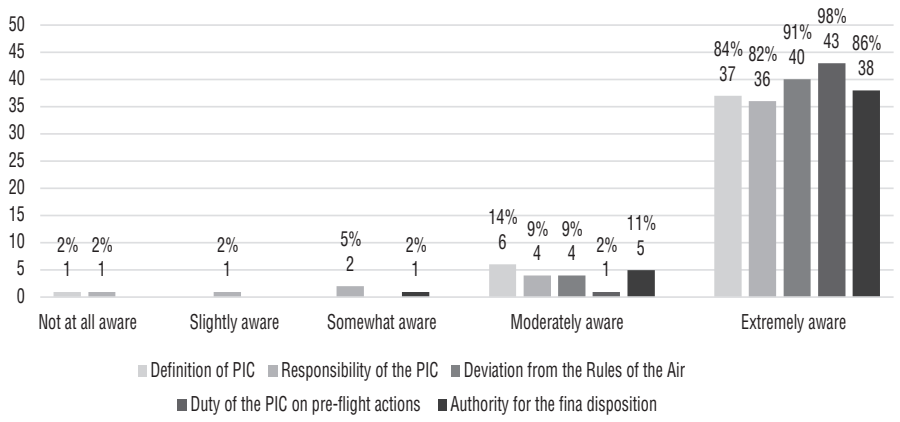

Figure 14 Responsibilities and authorities of the PIC

The respondents show a high level of awareness regarding their duties and authority as PICs, especially concerning pre-flight actions and the final disposition of the aircraft. This reflects a strong understanding of the operational aspects of the role of the PIC. Also, the high levels of extreme awareness regarding the authority for the final disposition and duty on pre-flight actions align with the fundamental responsibilities of a PIC to ensure the safety and legality of flight operations.

The awareness levels suggest a good degree of subjective clarity among respondents about their legal status as PIC, which is critical for safe flight operations and compliance with relevant rules. Also, if the majority of respondents have a clear subjective understanding of their legal status, it likely translates into collective-subjective clarity within the professional community.

88 Definition of PIC: Awareness of the definition of the PIC, who is designated by the operator or, in general aviation, the owner, as being in command and charged with the safe conduct of a flight; Responsibility of the PIC: The responsibility of the PIC to adhere to the rules of the air, whether or not they are actively manipulating the controls; Deviation from the Rules of the Air: The PIC's authority to deviate from the rules of the air when necessary for safety reasons; Duty of the PIC on Pre-flight Actions: The PIC's duty to be familiar with all relevant information for the intended operation, including weather, fuel requirements, and potential issues and resolutions; Authority for the Final Disposition: The PIC having final authority regarding the disposition of the aircraft while in command.

5.4.4 Prosecution and Just Culture – Broad liability constructs and split-level and mixed regulation

5.4.4.1 Prosecution and Just Culture – Definition

The following Figure shows the pilots' awareness levels concerning prosecution under Article 12 of the Chicago Convention (1944) and the absence of universal standards to determine criminal liability.[89]

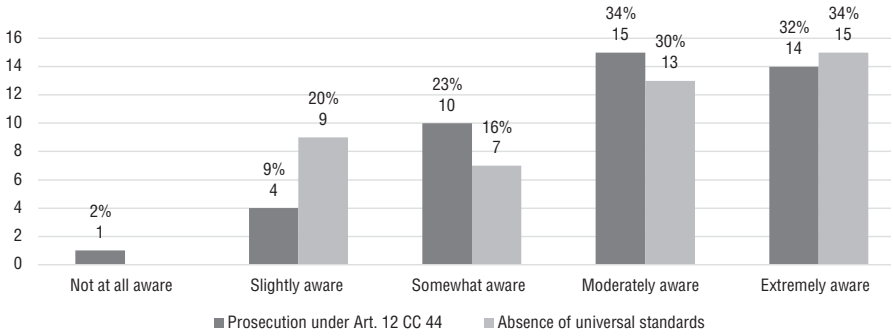

Figure 15 Prosecution

Concerning subjective clarity, a significant proportion of pilots (68%) are moderately to extremely aware of "Prosecution under Art. 12 Chicago Convention (1944)."

It suggests a good level of subjective clarity regarding the obligation to prosecute pilots in case of violation of rules of the air within their jurisdiction. Also, regarding the awareness of the "Absence of universal standards," 55% of the respondents are moderate to extremely aware. This reflects an understanding that while pilots are aware of the possibility of prosecution, they also recognise variability across different ICAO Member States. Given the levels of awareness, we can infer that pilots generally feel informed about the legal framework pertaining to their prosecution for the violation of rules of the air, and they understand that there is no single standard that applies universally.

Concerning collective-subjective clarity, the survey results show that the responses are not tightly clustered but span across the spectrum of awareness levels. However, a majority are on the higher end of awareness

89 Prosecution under Article 12 of the Chicago Convention (1944): international obligation to ensure prosecution of pilots violating rules of the air provided in ICAO Annexes; Absence of universal standards: the prosecution of pilots being dependent on the national law of each Member State of ICAO in the absence of universally applicable scheme for the prosecution.

for "Prosecution under Art. 12 CC 44". In contrast, the distribution for "Absence of universal standards" has a greater spread. It indicates slightly less collective clarity on the issue. It may suggest that the respondents are aware of the non-uniform nature of prosecution standards but to varying degrees.

The result points towards some level of collective understanding, particularly regarding "Prosecution under Art. 12 CC 44". Nevertheless, the spread across awareness levels, especially in the "Absence of universal standards", implies that while there's an overall awareness, the depth of that awareness varies, which might affect the foreseeability of the legal framework in international civil aviation.

5.4.4.2 Prosecution and Just Culture – Details

- *Definition of Just Culture and the purpose of technical investigations*

The graph on "Just Culture" presents data on pilots' awareness of two components: the "Definition of Just Culture" and the "purpose of investigations."

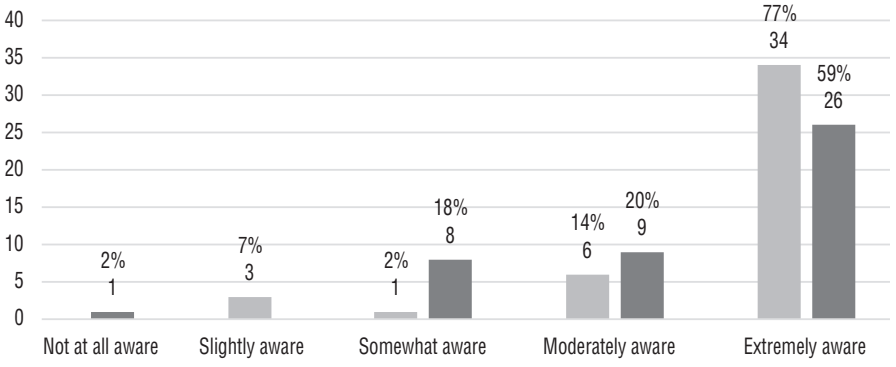

Figure 16 Just Culture

As to subjective clarity, a vast majority of the respondents are extremely aware of the definition of Just Culture. This high level of awareness could indicate that pilots are well-educated on the concept and principles of Just Culture, which emphasises a non-punitive approach to incident reporting and learning, except in cases of gross negligence or wilful violations. For the purpose of investigations, a significant majority of respondents are extremely to moderately aware. This demonstrates a clear understanding that the aim of investigations is to enhance safety by understanding causes rather than assigning blame or liability.

Concerning collective clarity, the high percentage of extreme awareness in both categories suggests that respondents have a strong collective understanding of Just Culture and the purpose of investigations. This implies that the current legal framework and training mechanisms are effective in communicating these aspects of international civil aviation.

The data indicates that the legal and operational culture in aviation is successful in instilling a significant level of both subjective and collective-subjective clarity on the concepts of Just Culture and the investigative process.

- *Familiarity with Just Culture*

Figure 17 below presents the responses to a statement regarding respondents' familiarity with the Just Culture as opposed to criminalisation and prosecution.

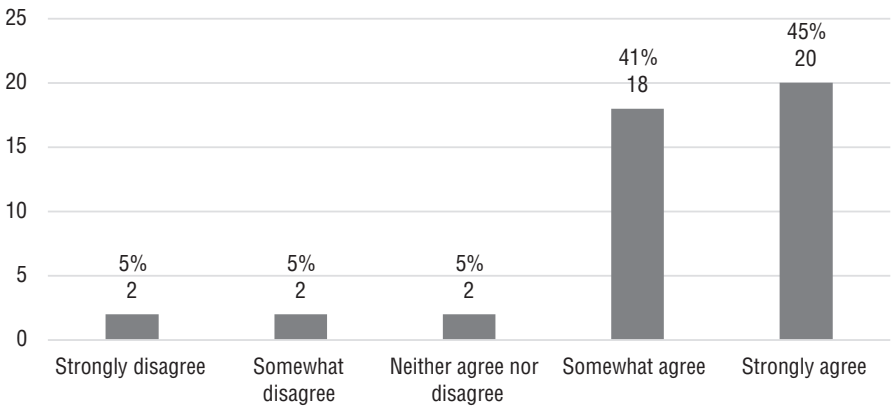

Figure 17 Familiarity with Just Culture than prosecution

In this particular question, respondents did not share the level of clarity directly. However, they shared which approaches they feel are familiar with, namely, prosecution and Just Culture.

The vast majority present their 'somewhat' to 'strong' familiarity with Just Culture rather than prosecution in case of accidents. Therefore, this shows a collective clarity regarding the approach to Just Culture among the pilots rather than prosecution.

- *Just Culture and related charges*

The chart below presents levels of awareness concerning what constitutes 'gross negligence,' 'wilful violation,' and 'destructive acts' under Just Culture.

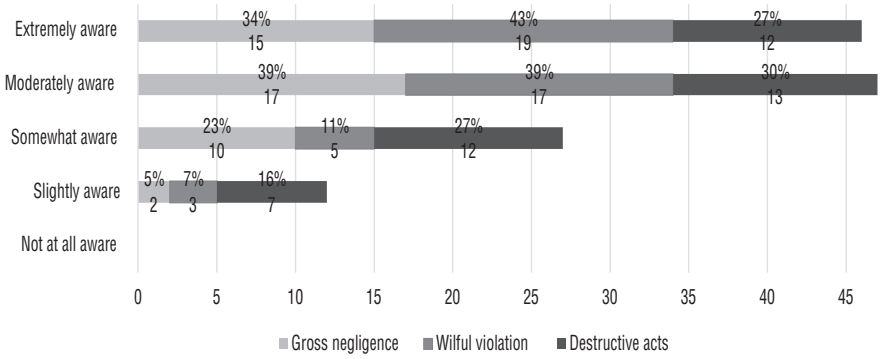

Figure 18 Just Culture and punishable conduct

Generally, respondents show higher awareness of what constitutes a wilful violation and destructive acts compared to gross negligence.

None of the pilots claimed a lack of awareness. Instead, they expressed at least a slight awareness of punishable conduct under Just Culture.

5.4.4.3 Interaction between safety management and criminal liability of pilots

Under the current conceptualisation, safety management can be approached through three avenues: reactive, preventive, and proactive management.[90] Respondents expressed their preferred approach to safety management and how the prosecution and Just Culture align with these three safety management mechanisms.

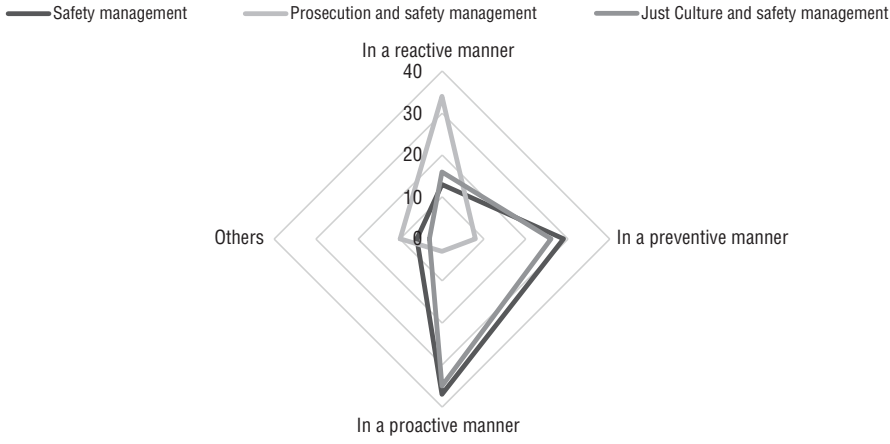

Figure 19 Safety management, prosecution, and Just Culture

90 *See* Section 1.

The findings indicate that respondents predominantly endorse proactive safety management, followed by a recognition of the importance of preventive measures in aviation safety. Conversely, the smallest respondents advocate for reactive safety management.

The respondents characterise prosecution as a reactive approach to safety management while perceiving Just Culture as an approach combining proactive and preventive safety management. Consequently, the results suggest that, according to respondents, Just Culture is a more suitable method for safety management.

5.4.5 Case studies

5.4.5.1 Overview

In line with the earlier sets of questions, the survey adopted an approach that involved presenting actual cases to establish foreseeability. The case studies included commonly asked questions, such as whether respondents agreed with the decisions made by the pilots in the presented cases and whether the pilots should face punitive measures or not.

5.4.5.2 Case study 1- Hudson River case

- *Agreement on the pilot's decision*

The first question requested pilots to share their agreement on the captain's decision to land on the river.

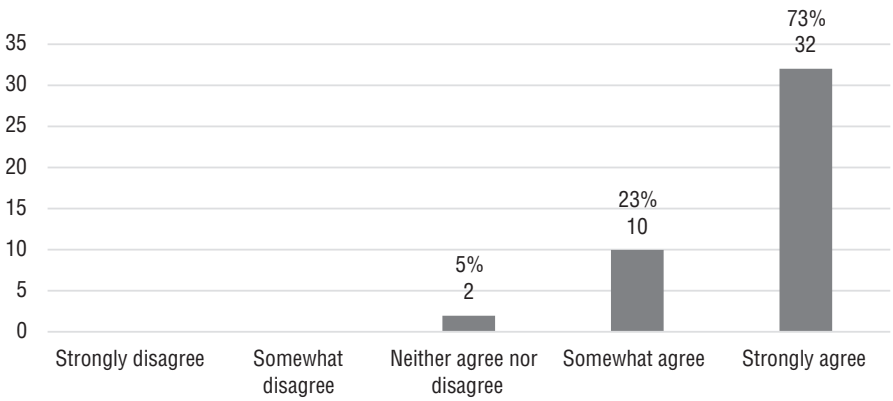

Figure 20 Case Study 1 – Agreement on Pilot's Decision to Land on the River

Out of the 44 pilots surveyed, 32 pilots expressed a strong agreement with the decision of their fellow pilots to land on the river. Notably, there were no pilots who indicated disagreement. This outcome highlights a shared consensus in the decision-making process when it comes to opting for a river landing.

- *Punishment in case of higher fatalities*

The hypothesis posited that in the event of fatalities, the pilots might have held a different perspective, potentially believing that punitive measures could be warranted for the pilots involved.

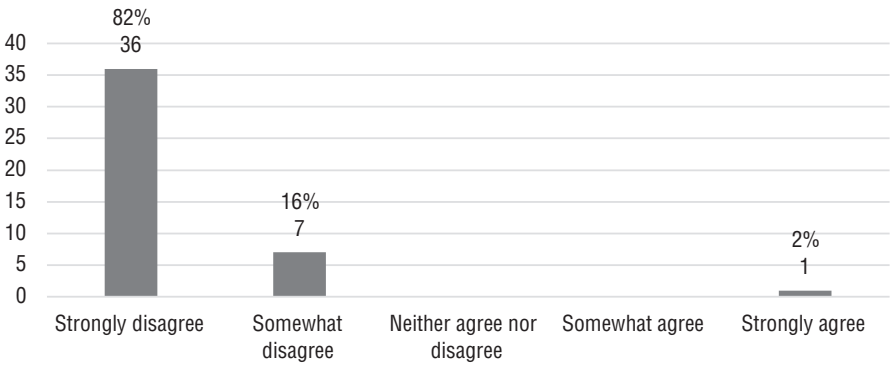

Figure 21 Case study 1 – Punishment in case of higher fatalities

As shown in the Figure above, most respondents strongly or somewhat disagree with the idea that the captain should be punished. A significant majority, with 36 out of 44 pilots, were against imposing punishment even when considering the scenario with added fatalities. This result further underscores a shared stance among pilots against punitive measures, specifically in the context of the Hudson River case.

- *Potential charges under Just Culture*

The Figure below presents respondents' opinions on what type of potential charges (differentiated through distinct collective-subjective elements within charges) under Just Culture may be applicable to the PIC if there were fatalities in the case.

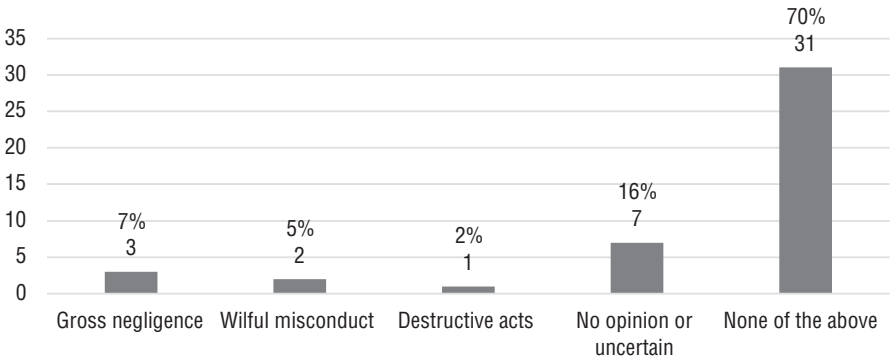

Figure 22 Case 1 – Just Culture charges

As depicted in Figure 22, there is a lack of consensus on the applicable charges under Just Culture. Nevertheless, 70% of the respondents conveyed that the PIC should not be punished. Clearly, they all opposed punishment.

This result suggests almost no divergence in perspectives among the surveyed pilots regarding the appropriateness of charges in this particular case under the framework of Just Culture, as they support non-prosecution.

5.4.5.3 Case study 2 – San Francisco case

- *Agreement on the pilot's decision*

Figure 23 presents the respondents' level of agreement with the decisions made by the pilots in Case 2.

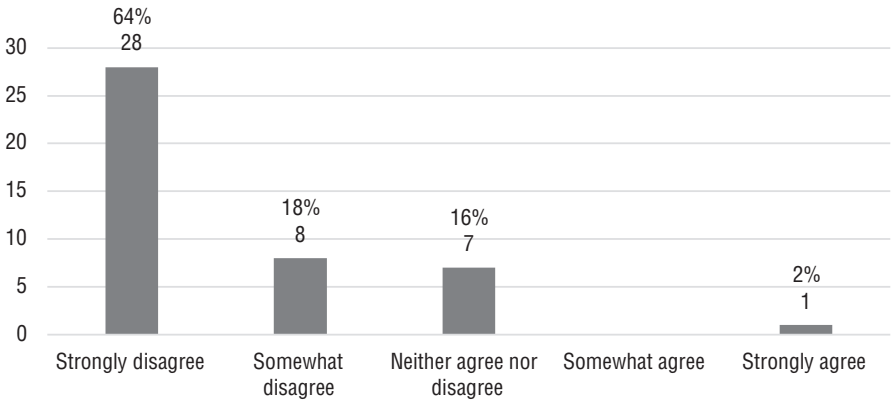

Figure 23 Case study 2 – Agreement on pilot's decisions

As illustrated, 28 respondents, which form 64%, strongly disagree with the decisions of the pilots in Case 2. Only one respondent expressed a strong agreement. This result suggests a consensus among the respondents regarding their viewpoints on decision-making in the context of Case 2.

- *Punishment*

Pilots also expressed their opinions on whether the pilots in Case 2 should face punishment.

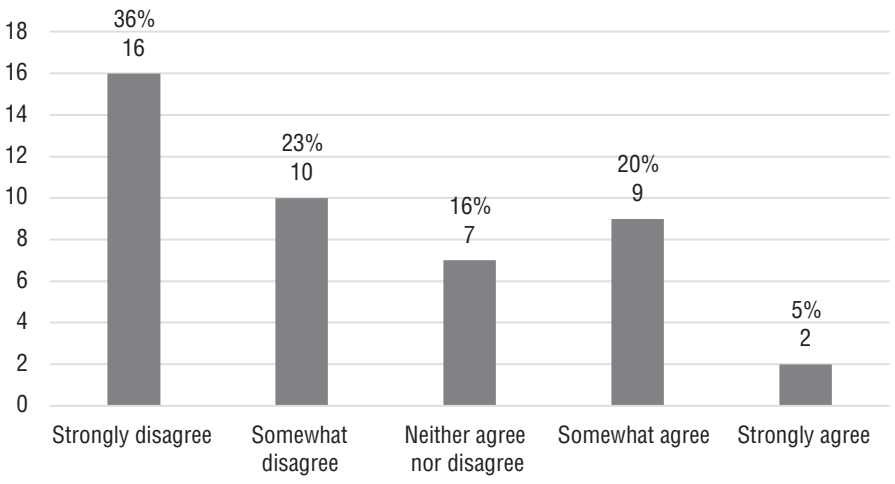

Figure 24 Case study 2: Punishment

The responses indicate a lack of complete consensus on the matter of punishment. While 59% of the respondents tend to disagree with punishment, 25% agree with it, and 16% remain neutral. This result suggests a divergence in perspectives among the surveyed pilots regarding the appropriateness of punitive measures in the context of Case 2.

- *Potential charges under Just Culture*

The respondents also demonstrated a lack of unanimity regarding the potential charges if the pilots in Case 2 were to face punishment under Just Culture distinctions.

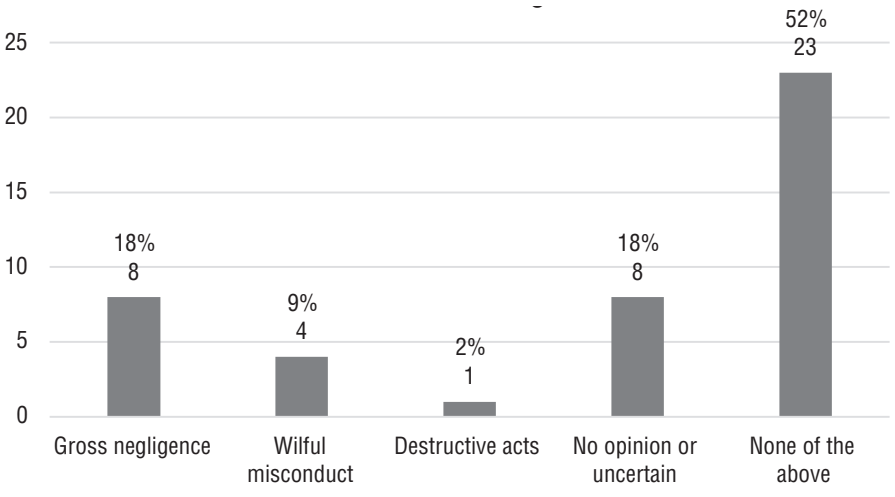

Figure 25 Case study 2 Applicable charges against the pilots

As indicated in Figure 25, "Gross negligence" has 8 responses, which constitute 18% of the total responses. Wilful misconduct is associated with 4 responses, making up 9% of the total. Destructive acts received the least number of responses, only 1, which is 2% of the total. The category "No opinion or uncertain" has 8 responses, equating to 18%. The most significant number of responses is in the category "None of the above", with 23 responses that make up 52% of the total. The majority of responses show 'none of the above'. This group suggests that the respondents either believe no charge is applicable or another charge not listed should be considered.

5.4.5.4 Case study 3 – Pakistan Airlines case

- *Agreement on the pilot's decision*

In Case 3, respondents first demonstrated a shared understanding regarding the decision-making of the pilots involved in the accident.

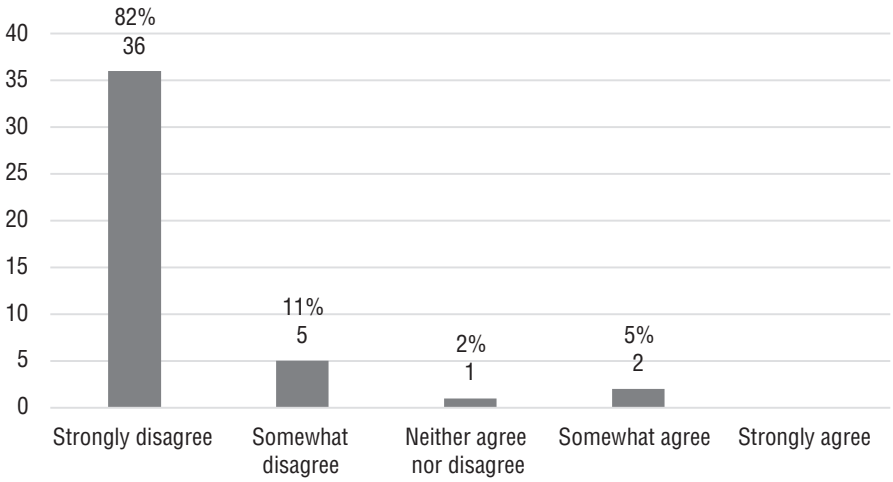

Figure 26 Case study 3 – Agreement on pilot's decision to land

Figure 26 indicates a clear majority of respondents, 82%, strongly disagree with the pilots in Case 3. The rest of the categories have much lower response rates. There is a notably small number of respondents who are neutral or who agree in any form with the pilots. There is a consensus among the respondents in opposition to the pilots' position.

- *Punishment for overconfidence*

The Figure below presents the level of agreement of respondents on the punishment for being overconfident.

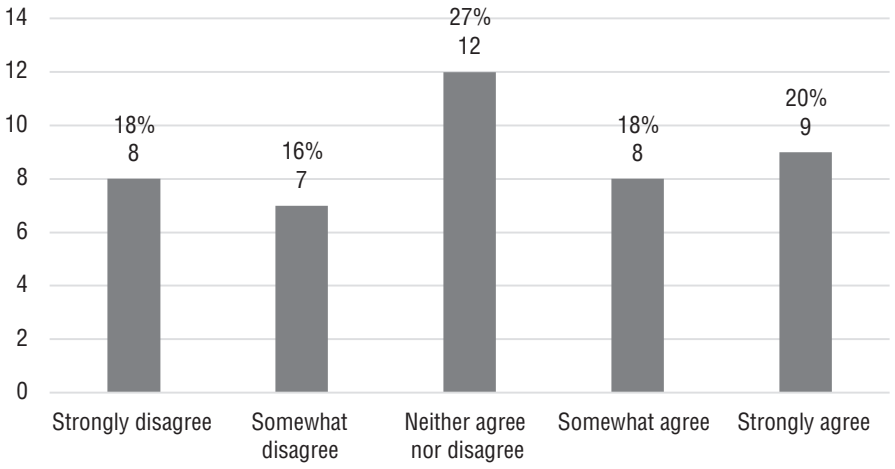

Figure 27 Case study 3 – Applicable punishment against the pilots

The current figure presents that the opinions of the respondents are fairly spread out but with a mild tendency towards the "Neither agree nor disagree". There is not a majority consensus, which suggests that opinions on the punishment for overconfidence are divided in the context of Case 3.

- *Potential charges under Just Culture distinctions*

The figure below presents the results of the selection of respondents on appropriate potential charges to the pilots in Case 3.

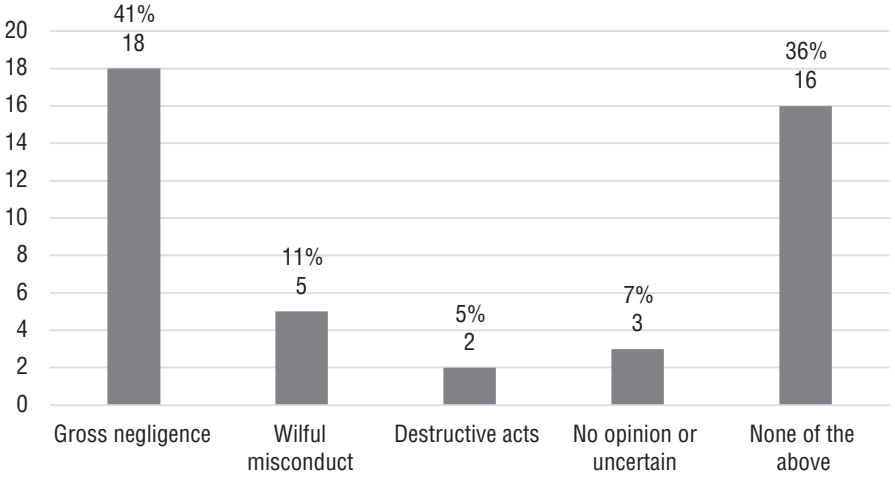

Figure 28 Case study 3 – Applicable charges against the pilots

The result indicates a divided opinion mainly between "gross negligence" and "none of the above." However, some respondents also pointed out that 'wilful misconduct' and 'destructive act' can also be applicable charges for the pilots in Case 3. There is no clear consensus.

- *Disposal of communication*

The responding pilots shared a more unified perspective on the public release of communication within the cockpit and between the cockpit and air traffic control towers.

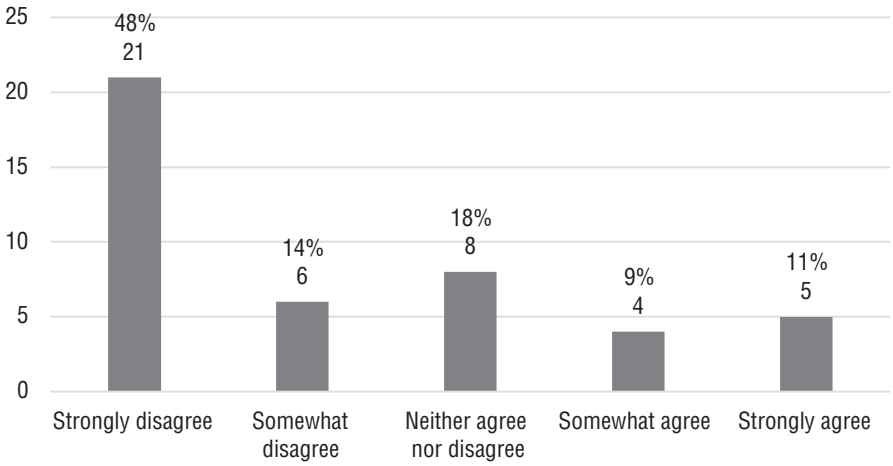

Figure 29 Case study 3 – Agreement on the disposal of the communication

21 respondents, which form 48% of the population, present their strong disagreement with the minister for releasing cockpit information. A significant portion of the pilots strongly disagree. While the tendency leans towards disagreement, still 17 respondents, forming 38% of the population, remain either neutral or agree with the minister's decision. There is a lack of consensus.

- *Government and criminal responsibility*[91]

While a majority of pilots acknowledged the fault of the pilots in Case 3, the survey still requested respondents to share their level of agreement on the government's responsibility in Case 3.

91 The original question in the survey states whether the government should be criminally liable. In principle, this is not possible and it should remain clear that governments cannot be criminally liable. However, to help the understanding of the pilots, the question still questioned on the criminal liability of the government, which should be understood as ' criminal responsibility' in the context of this study.

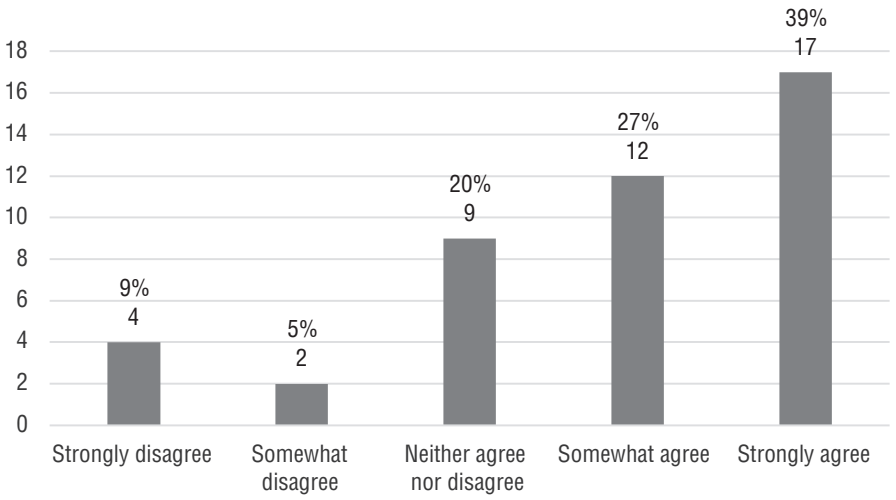

Figure 30 Case study 3 – Agreement on the State responsibility for the license of pilots

In terms of collective-subjective foreseeability, there seems to be a lean towards agreement on the government's criminal responsibility. A combined 66% of respondents either somewhat or strongly agreed. However, since a notable 34% disagrees or is neutral, this suggests there is not a complete consensus.

From a collective-subjective clarity perspective, the fact that the largest percentage of respondents strongly agree might suggest that these individuals feel clear about the framework or conditions under which the government should be held responsible is applicable. However, given the spread of responses, individual interpretations of the legal framework may vary. The presence of strong opinions on both ends of the spectrum (strongly disagree and strongly agree) indicates that the subjective understanding of the legal framework concerning the government's responsibility is not uniform among the respondents.

- *Corporate liability*

In the final question of Case 3, pilots offered their perspectives on the corporate liability of the airline, considering that pilots are trained by the corporate, the airline PIA in this case.

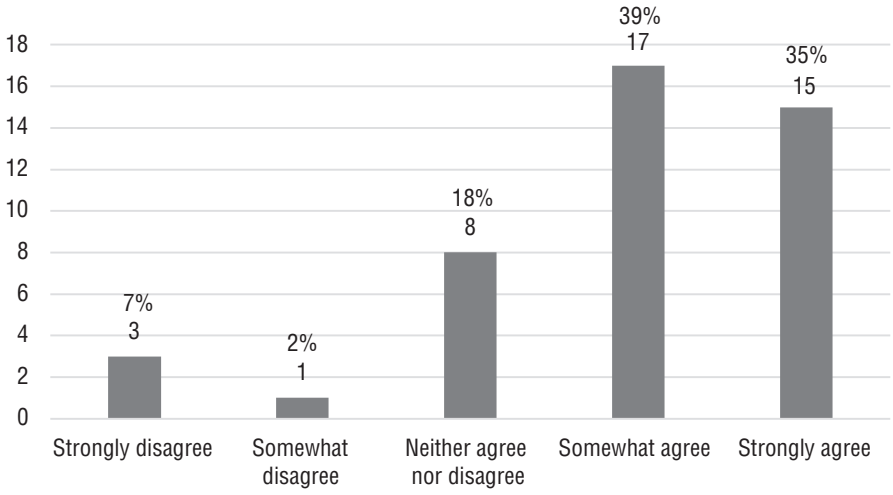

Figure 31 Case study 3: Corporate liability

From the collective-subjective clarity point of view, the majority of respondents, 73%, agree, to some extent, with corporate liability. This majority agreement may suggest a collective leaning towards the acceptance of corporate liability within the legal framework.

However, the subjective clarity aspect reveals a significant division among the respondents, with 9% disagreeing in some form and a neutral group making up 18%. The division of opinions suggests varied personal interpretations of corporate liability's role within the legal framework.

5.5 Chapter conclusion

5.5.1 Overview

The survey conducted among pilots on their views regarding criminal liability in aviation accidents provides significant insights into the complex interplay between legal frameworks, aviation safety, and Just Culture. This discussion aims to interpret these findings, considering the objective and collective-subjective clarity of the legal frameworks in international aviation and the implications for aviation safety and policy development.

5.5.2 Legal clarity and collective-subjective foreseeability

There is a high level of awareness among pilots about the collective goods and interests they are to protect and themselves as a special norm addresses, namely, aviation safety and the legal status of pilots, as shown in the survey results. This suggests a strong foundation of collective-subjective

clarity in the existing legal frameworks. Pilots' familiarity with the core concepts of aviation safety, such as the core value of safety and the definition provided by ICAO, highlights the effectiveness of current regulatory or training mechanisms in promoting an understanding of these principles. However, the mixed responses to case studies indicate that while theoretical knowledge presents high foreseeability, the application of this knowledge to real-life scenarios signals variability in perceptions.

5.5.3 Just Culture and criminal liability

The concept of Just Culture is critical in the operation of the current aviation industry, emphasising the importance of learning from incidents and accidents without recourse to prosecution, except in cases of gross negligence, wilful misconduct, and destructive acts. The survey's findings that pilots are generally more familiar with Just Culture than with the prosecution stresses the industry's shift towards Safety Culture, which prioritises learning and prevention over punishment. Also, it means prosecution is, in theory, not foreseeable to pilots.

The varied responses to potential punitive measures in the provided case studies highlight the challenges in applying Just Culture uniformly across different scenarios and jurisdictions.

5.5.4 Case studies analysis

The detailed analysis of pilots' responses to the three case studies (Hudson River, San Francisco, and Pakistan Airlines cases) is an illustration of the nuanced considerations pilots make when evaluating decisions under duress and the appropriateness of criminal charges. The widespread agreement with the pilot's decision in the Hudson River case reflects a collective endorsement of emergency decision-making that prioritises safety outcomes. In contrast, the San Francisco and Pakistan Airlines cases show more divided opinions, pointing to the complexities of assessing human error, systemic failures, and the boundaries between human error and punishable negligence.

5.5.5 Implications for policy and training

The divergence in pilots' views, especially in practical case scenarios, suggests a need for clearer guidelines and more consistent application of Just Culture across the industry. It also highlights the potential for enhancing pilot training programs to better prepare pilots for the legal and ethical considerations they may face in post-accident evaluations. However, the consistent application of Just Culture may be challenging due to the domestic application of common criminal law.

Moreover, the findings call for ongoing dialogue between regulatory bodies, airlines, and pilots to refine the balance between ensuring safety and enforcing accountability within a supportive and educative framework.

5.5.6 Conclusion

The survey results imply the significant importance of foreseeability through subjective awareness and collective-subjective understanding of various variables among pilots. While there is strong subjective clarity on theoretical aspects of aviation safety and legal frameworks, applying these principles to specific cases reveals diverse interpretations and opinions, which are interpreted as collective-subjective foreseeability. This aspect is particularly interesting, given the complex and mixed structure and broad liability constructs featured in positive air law. Moving forward, fostering a more unified understanding of Just Culture, enhancing training, and developing clearer guidelines for post-accident evaluations could strengthen the industry's approach to balancing safety, learning, and legal accountability.

5.6 Demographics of the respondents (pilots)

The table below contains information on demographics of the respondents of the survey as described in Section 5.2.3.

Categorisation		**%**	**Count**
Age	Under (or including) 30	9.09%	4
	31-35	20.45%	9
	36-40	11.36%	5
	41-45	9.09%	4
	46-50	11.36%	5
	51-55	9.09%	4
	56-60	20.45%	9
	61-65	4.55%	2
	66 and above	4.55%	2
Types of license	Private Pilot Licence	11%	5
	Commercial Pilot Licence	7%	3
	Multi-Crew Pilot Licence	5%	2
	Air Transport Pilot Licence	77%	34

Categorisation		%	Count
Position	Co-pilot	30%	13
	Co-pilot, pilot-in-command	2%	1
	Co-pilot, pilot-in-command, manager	2%	1
	Pilot-in-command	41%	18
	Pilot-in-Command, Flight Instructor	11%	5
	Pilot-in-Command, Flight Instructor, Manager	7%	3
	Pilot-in-Command, Manager	2%	1
	Senior first officer	2%	1
	No aviation position	2%	1
No. of flight hours (hrs)	≤1000hrs	13.64%	6
	1001hrs -500hrs	4.55%	2
	1501-2000hrs	4.55%	2
	2001-3000hrs	4.55%	2
	3001-4000hrs	4.55%	2
	4001-8000hrs	13.64%	6
	8001hrs or above	43.18%	19
	Others (between 15000hrs to 23000hrs)	11.36%	5
Main operating fleet	A220 Series, B737 Series, Jetstream 32	2%	1
	A320 Series	7%	3
	A330 Series	7%	3
	A350 Series	2%	1
	A380	0%	0
	B737 Series	16%	7
	B737, B777, 787	5%	2
	B747 Series	14%	6
	B767 Series	0%	0
	B777 Series	7%	3
	B777, 787	14%	6
	B787 Series	2%	1
	Others	25%	11

Categorisation		**%**	**Count**
Types of the operator	ATO's	2%	1
	ATO's and others	2%	1
	FSC	61%	27
	FSC and ATO	7%	3
	FSC and LCC	2%	1
	FSC and Research Institute	2%	1
	Government, others	2%	1
	LCC	11%	5
	Non-aviation	5%	2
	Research Institute	2%	1
	Research Institute and others	2%	1
Location of the employment	North America	0.00%	0
	Central America	0.00%	0
	South America	0.00%	0
	Europe	77.27%	34
	Middle-East	0.00%	0
	South-East Asia	6.82%	3
	East Asia	13.64%	6
	Africa	0.00%	0
	Oceania	2.27%	1
	Others (Please provide details of your response using the text box below)	0.00%	0
Nationality of the respondents (pilots)	North America	4.55%	2
	Central America	0.00%	0
	South America	0.00%	0
	Europe	79.55%	35
	Middle-East	0.00%	0
	South-East Asia	6.82%	3
	East Asia	0.00%	0
	Africa	2.27%	1
	Oceania	6.82%	3
	Others (Please provide details of your response using the text box below)	0.00%	0

Table 2 Demographics of the respondents (pilots)

6 General conclusions and recommendations

6.1 Introduction

This study has aimed to respond to the following principal research question:

> *"How do international and domestic legal systems regulate the criminal liability of pilots within the context of the paradigms of Safety, Transparency and Legal Certainty And in what way can the coherence and clarity of these paradigms be enhanced?"* [1]

In the journey to find the answers to the above main questions, the following sections present the summary of findings (Section 6.2), the main conclusions (Section 6.3) and recommendations (Section 6.4).

6.2 Research findings

6.2.1 The paradigms

6.2.1.1 Safety paradigm

The key to the safety paradigm is that it results from the collective civilisation of the international civil aviation community.[2] States, organisations, and individuals integrate their safety values and interests into the safety paradigm under the Chicago Convention (1944) and ICAO. Safety in civil aviation is not just about preventing accidents; it involves continuous management of aviation through hazard and risk identification, with the active participation of States, organisations, and individuals under the auspices of ICAO. This organisation has been, and is, involved as the global regulator in the evolution of safety, representing technical, human, organisational, and system elements. However, it lacks enforcement powers.

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1 Section 1.2 of this research.

2 Section 2.2.1 of this research: *"Civilization is the stage of cultural and technological development, in which a group of people or States are willing to integrate their individual values and interests into collective values and interests of the society of which they form part: they are able to identify collective values and interests of their society with their individual values and interests." See*, Isabella H. Ph. Diederiks-Verschoor and Henri A. Wassenbergh, 'Dr. J.F. Lycklama à Nijeholt (1846–1947)' (1994) 19(1) Air and Space Law 8, 10.

Friction may arise in the efforts of the global aviation community to protect safety. The use of criminal law enforcement has been a dilemma,[3] although the Chicago Convention (1944) calls for it by referring to the term 'prosecution' in its Article 12. With scientific developments pointing to the potential negative consequences of apportioning blame for safety management in the long run, the international civil aviation community started to promote Just Culture. These developments and the diversity attending them certainly add problems to the legal certainty and transparency paradigms.

6.2.1.2 Transparency paradigm

Vertical transparency pertains to openness and accessibility of information. It also involves the availability of information to a defined audience under the requirement of fundamental accuracy and clarity. Vertical transparency is also codified as a constitutional right in certain States, emphasising the importance of States providing access to information.[4]

ICAO also refers to vertical transparency. ICAO's transparency is often associated with publishing and sharing information, such as ICAO Annexes, but it also limits and restricts transparency. Some materials, especially security-related SARPs, are classified and restricted to authorised entities and individuals for the sake of the safety and security of civil aviation. The limited level of transparency requires States to share audit results and corrective actions while keeping sensitive information private.

Moreover, international air law protects records collected during aviation accident investigations. This is when horizontal transparency matters. Protection restricts the disclosure and use of particular accident and incident records to promote safety and prevent adverse impacts of the publication of safety documents. The focus of protection applies to accidents and records of regular aviation operations to support horizontal transparency within the aviation community, even if domestic legislation recognises vertical transparency as a fundamental right or has enacted specific legislation to promote transparency and access to government information.

The link between the diverse aspects and functions of vertical and horizontal transparency and aviation is related to technical investigations of accidents and the disposal of information collected during the inquiry. The evidence collected during the technical accident investigation is, in principle, protected in support of the safety paradigm. However, the right to information for affected individuals, their families, and the general public may clash with the safety paradigm. Non-disclosure extending to use in judicial proceedings, including criminal ones, can impede the administra-

3 Sections 2.2.4.3 of this research.

4 Section 2.3.4 of this research: the US, UK, Korea, Switzerland, and Sweden are examples.

tion of justice in different ways. It may be that non-disclosure of certain information blocks prosecution entirely or that important information is missing to enable proper assessment of a pilot's (in)actions, particularly seen in the light of the complexity of pertinent norms. More generally, the more dominant horizontal transparency is (meaning that optimal transparency is sought after, which is to be achieved by the guarantee of non-disclosure to actors outside of aviation authorities involved in technical investigations), the less extensive vertical transparency will be. This can also impact legal certainty in the sense that because broader audiences (such as victims) do not possess information, they cannot take proceedings and judicial action for the same reason does not take place, and accidents and incidents are not litigated. As a consequence, normative clarity, which can be greatly enhanced through adjudication, is not developed in this manner.

6.2.1.3 Legal certainty paradigm

The law should be designed to provide clarity to its subjects. The prescription of offences and punishments must be understandable and predictable. Clarity helps guide the subjects of law and provides a fair warning while serving as a rational basis for court decisions. Foreseeability implies that the law should lay down what individuals know or ought to know in order to act lawfully.

Another critical aspect of legal certainty is the accessibility of legal sources. Laws, including case law, should be publicly available to subjects with sufficient precision. International treaties and other legal sources should become part of the official publication of the domestic legal system to meet the accessibility requirement. Accessibility is obviously also linked to transparency. The availability of all relevant information, including that which can enhance insights of actors as to the delineation of potential criminal liability, is not guaranteed in the context of civil aviation.

Challenges to legal certainty are also primarily affected by the combined effect of the need for and existence of global standards, the technical features of the aviation industry, and the complex junction of air and criminal law. Given the high standards in terms of professional duties of care and broad discretion allocated to pilots, clarity of the relevant legal frameworks is further reduced, even given their further (enhanced) duty to be familiar with relevant norms.

6.2.1.4 Concluding remarks

The analysis of Chapter 2 on the paradigms of safety, legal certainty and transparency demonstrates inconsistency and unclarity in their interaction where the criminal liability of pilots is concerned. None of the paradigms is

dominant over the others. The diffuse relationship between these underlying paradigms has an impact on the positive law framework.

6.2.2 International legal framework regulating criminal liability of pilots

6.2.2.1 The Chicago Convention (1944)

As the legal dimension of the safety paradigm, two provisions, namely, Articles 12 and 26 of the Chicago Convention (1944), principally govern the Contracting States' obligations regarding the criminal liability of pilots.

Article 12 of the Chicago Convention (1944) is the legal basis for States to deploy criminal prosecution of pilots. In its complex structure, Article 12 supports the safety paradigm by pursuing compliance with flight and manoeuvre rules as provided by ICAO Annexes and uniform application of SARPs within the scope of flight and manoeuvre rules while granting flexibility in cases required for safety promotion in the implementation of ICAO Annexes into domestic law. While prosecution in the context of Article 12 is not exclusively applicable to pilots, pilots can become subject to prosecution in the event of flight and manoeuvre rule violations as implemented into the domestic legal system. Such prosecutions can be understood as enforcement coming under the State's oversight functions.

On the other hand, Article 26 of the Chicago Convention (1944) establishes the obligation of Contracting States to investigate aviation accidents. This provision has significant relevance in the context of the criminal prosecution and liability of pilots, particularly through the impact that the safety and transparency paradigm may have on legal certainty, as further detailed in ICAO Annex 13. Although Annex 13, prescribing recommended procedures to conduct technical investigations for States, is explicit about the purpose of technical investigations, which must be designed to prevent future accidents, Annex 13 does not and cannot restrict the administration of justice through judicial investigations.

Articles 12 and 26 reaffirm the relevance of SARPs. In the case of Article 12, ICAO Annexes 1, 2, 6, 11, and 19 are indirectly referenced. In the case of Article 26, the reference is more visible but still requires a thorough examination of SARPs contained in ICAO Annex 13. Even if these Annexes are implemented in domestic law, the legal certainty paradigm is still challenged because the relevant SARPs lack clarity, as further explained in the next subsection.

6.2.2.2 ICAO SARPs as contained in Annexes

ICAO Annexes 1, 2, 6, 11, and 19 constitute flight and manoeuvre rules as part of global safety regulations. Standards contained in these Annexes are

meant to be the yardstick for establishing criminal liability of pilots. They can only perform this function if they have been adopted in the domestic legal system and are clearly defined as offences and punishments.

However, even if implemented into the domestic legal system, these five ICAO Annexes present numerous complexities and vague Standards. The Annexes concern not only individuals who are pilots, especially the pilot-in-command, but also the supervising operators, who are responsible for pilots' compliance with the flight rules. As the operators are supervised by supervisory authorities of the Contracting States of the Chicago Convention (1944), it follows that such authorities and operators are responsible for the conduct of pilots, who are meant to be ultimately responsible for the safe operation of the aircraft and may make deviations from the flight rules as implemented into the domestic legal system of the overflown States. Apportioning blame in this complex system remains challenging.

Annex 13 requires States to limit the (vertical) transparency paradigm in favour of the safety paradigm by restricting the disclosure of findings from technical investigations of accidents. Historically, the relevant Standard 5.12 was a Recommended Practice, which does not hold binding force *per se*. It has since become a standard, creating a more prominent legal force for this norm.[5]

However, ICAO Annexes 13 and 19 also do not prohibit criminal investigations or disclosure of records to prosecute pilots. The so-called principle of exceptions in both Annexes allows States to conduct a balancing test, which leaves room for interpretation. This room for interpretation is especially relevant to the concept of Just Culture, which aims to reconcile the safety and transparency paradigms.

6.2.2.3 Concluding remarks

Within the complex interplay of various paradigms, SARPs, in the end, highlight the pivotal role of the pilot-in-command, the impact of operational control in different types of aviation operations, and the nuanced objectives of accident investigations in Annex 13, which seek to balance safety and transparency paradigms. The legal certainty paradigm is, however, harmed because this balance cannot be, or has not yet been defined or regulated. Hopefully, this work contributes to a better understanding of the need for such a balance.

The scrutiny of SARPs also does not enhance legal certainty because they must be implemented in the domestic legal system of ICAO's Contracting

5 Sections 1.5.2 and 3.4.2.1 of this research.

States and be accessible to pilots. Whether and to what extent implementation is effective can be questioned. However, this will be examined in the following sections.

6.2.3 Domestic legal framework regulating criminal liability of pilots

6.2.3.1 Key differences and similarities

While the global implementation status of the principal provisions of the Chicago Convention (1944) and SARP may vary, most States declare that they fulfil the obligations under Articles 12 and 26 of the Chicago Convention (1944). The US, UK and the ROK, in any event, show a high level of implementation of SARPs.

However, high implementation does not necessarily lead to standardisation. Illustratively, the safety paradigm seems to be somewhat limited by the transparency paradigm in the US and the UK, whereas technical investigations are not always prioritised in the UK. Difference and similarities also obtain, besides in the (manner of) implementation of Standards, in relation to the separation of administrative and criminal modes of enforcement and sanctions. Both the US and the ROK primarily address violations of flight and manoeuvre rules through administrative sanctions rather than criminal prosecution. The UK, however, integrates both civil and criminal sanctions depending on the situation, allowing for a rather greater flexibility. Moreover, as discussed above, the interpretation of classical domestic criminal law concepts, which are mainly delineated in case law, such as intent, negligence, or recklessness, can be diverse and not necessarily align with the understanding of such concepts within the aviation community, to the extent that such understanding exists.

6.2.3.2 Concluding remarks

Depending on the manner of regulation in domestic systems, the prosecution of pilots may be based on general criminal law and/or aviation-specific criminal legislation. However, the practical grounds for prosecution often revolve around harm inflicted on human lives and property, blending elements of general criminal and aviation law. Consequently, violations of ('only') local flight and manoeuvre rules do not always lead to prosecution in the jurisdictions discussed in Chapter 4, namely, the US, the UK and the ROK.

Upon reviewing case law in the three selected jurisdictions, it becomes apparent that none of the paradigms – safety, transparency, or legal certainty – hold absolute dominance in any of them. The safety paradigm uniformly perceives prosecution and criminal proceedings as tools for deterring non-compliance and promoting safety, even if industry perspec-

tives are divergent on this position. All three paradigms can interact in different manners, however, leading to diverse outcomes.

In this complex system, the legal certainty paradigm faces significant challenges. This is particularly so in the ROK because accessible case law is scarce, while regulations specifying pilot offences and punishments are only partially available. The limitations of the transparency paradigm in this sense and the scarcity of judgments hinder foreseeability. Hence, pilots may struggle to anticipate which actions within the complex realm of aircraft operations might constitute an offence.

Ultimately, the legal certainty paradigm indeed appears to be the most adversely affected. The ramifications thereof may significantly impact the position of accused pilots. Although the studied jurisdictions boast highly standardised aviation laws, their legislative frameworks often remain fragmented. None of these States contemplate the concept of just culture when applying criminal law; instead, they address "negligence" and "recklessness" in a simplified manner. Even when applying administrative sanctions, Just Culture is not taken into consideration.

6.2.4 Legal certainty, pilots, and collective-subjective standards

6.2.4.1 Collective-subjective foreseeability

Collective-subjective foreseeability provides a new legal perspective for assessing pilots' criminal liability. While the existing legal framework assumes individual or objective attribution of blame, other findings, including the interpretation of Article 12 of the Chicago Convention (1944) and the domestic legal framework, prove that criminal liability should not be assessed solely on an individual level. Pilots act within a shared, internationally recognised and uniform knowledge framework which creates the broader context of professionally standardised norms in aviation. This provides a new perspective on the interpretation of foreseeability in criminal air law and contributes to the discussion on legal certainty within this sector.

Chapter 5 of the research presents a collective-subjective foreseeability test and the results with the focus on aviation safety, legal status of pilots, prosecution and Just Culture, and three case studies. A total of 44 pilots participated in the survey as respondents.

6.2.4.2 Test results

The test result shows that respondents are aware of the legal framework and regulatory concepts relevant to their criminal liability. The level of awareness respondents presented is rather high when it comes to the topic

of aviation safety and legal status of pilots. Regarding the applicability of Just Culture, respondents indicated awareness. However, the indicated level of awareness is not too high but rather distributed (not at all aware, slightly aware, somewhat aware, moderately aware).

Respondents indicated a level of agreement in three case studies presenting three actual accident cases. Respondents were asked questions on whether they would agree with the decision of pilots, if the pilots in the presented accident cases should be punished, and if pilots were to be punished, what potential charges would be. In the Hudson River Case, more than a majority indicated their "strong" agreement with the pilots in the Case. However, with the other two cases, again more than a majority indicated "strong" yet disagreement with the pilots. This again proves the validity of the collective-subjective foreseeability.

Another interesting aspect the result presents is that the respondents recognise the responsibilities of the government and airlines, which brings the question onto the influence of elements within the safety paradigm.

6.2.4.3 Concluding remarks

The survey results indicate two aspects: pilots are more collectively-subjectively aware of aviation related concepts such as their authorities and responsibilities and share common assessments of decisions made by their peers. However, their opinions varied concerning the applicability of Just Culture in the given case studies. This proves that the legal framework does not provide enough foreseeability to the pilots.

6.3 Research conclusions

6.3.1 The complexity of the relationship between the paradigms in criminal air law

The criminal liability of pilots is regulated by international and domestic air law in conjunction with general and/or special domestic criminal law, which can be jointly also referred to as 'criminal air law.' The combination of these branches of law is complex, also because they proceed from quite different starting points.

At least traditionally, air law has been designed to promote, in the first place, the safety of aviation, including through technical rules applying to modes of transportation. Accordingly, aviation standards are not only specialised but also contain detailed conditions, making the aviation safety regime a convoluted set of rules. Moreover, because of the cross-border nature of aviation, the air law framework originates at the international

(global) level, giving rise to international air law as (to be) implemented in domestic acts of States around the world.

Criminal law, which seeks to regulate the apportionment of criminal blame, is not necessarily harmonised by States and is domestic in nature. As such, prosecution and the establishment of criminal liability can only occur if there is a basis, therefore, in national law.

Pursuant to the analysis of the research question, in light of the intersection of the safety, legal certainty, and transparency paradigms, this study attempts to identify the tensions which arise from the complex relationship between air law and criminal law. These three paradigms depart from different purposes and values. They are, in differing degrees, supported by the provisions of the Chicago Convention (1944), norms established by ICAO in Annexes and related instruments, and primarily domestic law, including constitution and criminal law, as well as international human rights Conventions. States are party to, containing fundamental prescripts for criminal law, such as the substantive principle of legality.

The previous chapters show that the paradigms governing aviation, namely, safety, transparency and, in connection with the latter, the concept of Just Culture, are not easily balanced with the paradigm of legal certainty as follows from the substantive principle of legality, which is fundamental to criminal law. These paradigms thus exist in an inherent tension, which impacts the content and application of 'criminal air law.'

Because of the different purposes and values, as well as the inherent complexity of the regulation of aviation safety, it seems to me that resolution of this tension is not possible. That does not mean, however, that tension and complexity should not and cannot be alleviated.

6.3.2 Application of the paradigms to the research question

The combined impact of aviation paradigms is that clarity with respect to the delineation of potential criminal liability on the part of pilots is reduced. This is exacerbated by the fact that none of the paradigms seem to be dominant in criminal air law and its application.[6] The degree to which one appears to hold greater weight above another in application can also differ between national jurisdictions. All are subject to exceptions, and they can interact in different manners. Both vertical and horizontal transparency and the related principle of non-disclosure, including through the application of Just Culture, may be disregarded for the sake of protecting safety. At the same time, non-disclosure and Just Culture also function to protect safety

6 Chapter 1 of this research.

by ensuring that all relevant information relating to accidents and incidents is available for technical investigations, including by shielding actors from potential liability, also in criminal form.

The safety and transparency paradigms can also be made subordinate to the demands of legal certainty and the proper administration of justice. In this sense, the legal certainty paradigm may bring with it that because objective and subjective clarity is insufficient (from the perspective of individual pilots), fair foreseeability requirements mean that criminal liability cannot be fairly established. That may conflict with the safety paradigm in that the duty to prosecute violations and create a deterrent effect is not fulfilled. At the same time, air law norms are, by their nature, intricate and dynamic and must, for the optimal promotion thereof, be applied in accordance with the safety paradigm, which itself is also evolutive. Requiring greater clarity can mean that rigidity and inflexibility must be incorporated into substantive norms, which may defeat that purpose. Law is clear if it is supported by collective-subjective awareness of pilots as special norm addressees.

The Chicago Convention (1944) calls for criminal prosecution of pilots in case of flight and manoeuvre rules violations without providing clear conditions for such prosecution. The delineation of potential criminal liability must be found in the total matrix of international and domestic air and criminal law, which 'drops down' from this provision. As demonstrated in the previous chapters, this resolves into a highly complex system, which, moreover, can differ per jurisdiction. One particular difficulty therein for pilots is caused by the great discretionary power allocated to the pilot, particularly as PIC, and therewith ultimate responsibility for safety. While this can mean that pilots, at their discretion, can and should deviate from flight and manoeuvre rules if safety so requires, there is no guarantee that choices made by them will not lead to prosecution after the fact. Moreover, under what circumstances will they have violated rules, and when such violations can also amount to criminal offences, they can also be open.

Reduced clarity may be said to exist with respect to objective elements of offences, also because of the inherent difficulties in assessing and isolating the (in)actions of pilots as a (or 'the' primary) cause of accidents. Objective behaviour must namely be assessed in light of diverse factors, such as the influence of the operational state of the aircraft, wind, and other external factors, which may also include external security threats in such events as hijacking or sabotage of the aircraft. While pilots may also pose external security threats (and therewith act with intent), this study has focused on internal safety failures for which they may be held criminally accountable, which means that liability can often be established through subjective elements in the forms of extensively interpreted criminal intent or through negligence, including in the format of a failure in the duty to meet professional standards. While references are made in aviation sources to such

subjective elements, for criminal liability, the particular interpretation thereof under domestic criminal law, which can differ per jurisdiction, will be determinative.

The relationship between safety and vertical/horizontal transparency makes the establishment of criminal liability of pilots increasingly more challenging. A call for an enhanced and strong Just Culture to guarantee that actors are willing to participate in the technical investigation after accidents strongly supports the safety paradigm. Conversely, this means fewer opportunities for other types of legal action, including criminal, because of the absence of information. At the same time, because States can elect to allow for the disclosure of some information – but still block the exchange of others – and opt to prosecute pilots, there may not be a full picture of what happened, meaning that the liability of the pilot may (or may not) be established on the basis of an incomplete understanding, particularly if prosecution and adjudication are in the hands of criminal justice actors who may not have sufficient expertise to understand neither the complexity of accidents, how pilot behaviour should be assessed or the norms regulating safety.

6.3.3 Applicable norms for prosecution and adjudication

As demonstrated in this research, more specific conditions for prosecution are laid down in ICAO SARPs as drawn up in ICAO Annexes. Contracting States of the Chicago Convention (1944) and of ICAO are responsible for prosecution because of the combined effect of the – lack of – legal force of SARPs *per se* and the lack of enforcement powers of ICAO as a typical intergovernmental organisation. Hence, whether to prosecute or not depends on their implementation in domestic law and procedures by States.

As observed in the preceding sections, matters affecting criminal liability are highly complex. Next to specific aviation crimes that are applicable to pilots, including professional criminal negligence, there are general offences against life and physical integrity. Each jurisdiction regulates these matters differently, whether founded on negligence, intentional behaviour or otherwise (as strict liability offences).

In addition, the analysis of domestic legislation of the selected jurisdictions highlights that criminal action is not the exclusive remedy for protecting safety. Breaches of flight and manoeuvre rules can also be subject to the imposition of civil and administrative sanctions, applied alone or in parallel with criminal liability. This adds a layer of uncertainty to the establishment of criminal liability of pilots, in the sense that it is unclear which 'air law violations' will be dealt with under which system. While it is uncertain whether civil and administrative sanctions are effective, these two types of remedies moreover do not fall under the scope of 'prosecution' under

Article 12 of the Chicago Convention (1944),[7] so a concern may be that criminal law enforcement should play a larger role.

In the complexity of civil aviation, it is necessary to use the legislative technique, dubbed blanket legislation.[8] This is an intricate technique in which air law, criminal law, or even administrative law constantly refer to each other. Moreover, not all national laws explicitly refer to ICAO Annexes and SARPs. Thus, States, their courts, and stakeholders, including pilots, may not be aware of the applicable norms. The status of implementation of SARPs in domestic law, in combination with the legal nature of SARPs, including their sometimes opaque legal force,[9] does not help to clarify the criminal liability of pilots.

The use of such techniques and, more generally, operation of criminal law under more 'relatively' to be understood legal certainty can be (more) acceptable in special domains such as civil aviation, where fundamental collective legal goods and interests – in this case, safety – are at stake. Likewise, high duties of care can be placed on professionals, including pilots, not only in terms of ensuring safety but also in ensuring that they are aware of substantive norms. Even with such relativity, which may exist in legal certainty standards, however, there are hard limits to criminal liability. The open-ended nature of norms, the complexity thereof, and the diversity that may exist per jurisdiction can go too far. If Article 12 of the Chicago Convention (1944) must be understood as calling for greater use of criminal law means to effect safety, that must also be accompanied by greater care for clarity.

At the same time, from a practical perspective, the evolution of the safety paradigm suggests that the imposition of criminal liability in the event of human error may not be effective.[10] If voluntary reporting more frequently were to lead to criminal prosecution and liability, collecting information to enhance safety would not be possible, and hence, the development of safety insights and, therewith, greater safety would be hampered.

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7 Section 3.3.1.7 of Chapter 3. *See also*, Chapter 4.

8 *See* Chapters 1 and 4. It is a legislative technique "to denote the legislative technique where substantive provisions of criminal law, when setting out the constituent elements of criminal offences, refer to legal provisions outside criminal law. Moreover, the term "referencing provision" will be used to denote the (criminal law) provision referring to a legal provision outside criminal law. The latter will be termed the "referenced provision" or "provision referred to." *See also,* ECtHR, *Advisory opinion concerning the use of the "blanket reference" or "legislation by reference" technique in the definition of an offence and the standards of comparison between the criminal law in force at the time of the commission of the offence and the amended criminal law, [GC] (2020)*

9 Section 1.5.2 of Chapter 1.

10 *See* Sections 1.7, 2.2, and 3.4.2.

The concept of Just Culture was designed to elucidate the criminal liability of pilots. While the concept could have been an excellent instrument to balance the three paradigms by delineating with greater clarity how they should be balanced in different circumstances and under which conditions prosecution is called for (and that is not the case), it has, however, not, at least not yet, fulfilled this function and has not yet been implemented convincingly by States.[11] References to subjective elements such as intent, negligence and recklessness in Just Culture sources also do not provide greater clarity because these concepts are determined by domestic criminal law. The differences that exist in this regard in diverse jurisdictions also raise concerns about the clarity of norms at a global level.

I have also noted that the mandatory 'prosecution' duty under Article 12 of the Chicago Convention (1944) may harm international civil aviation's core value, safety. Supporters of Just Culture, who are against the application of a 'blame culture', agree.[12] However, the international civil aviation community has not always considered the adverse impact prosecution may have but rather has emphasised the positive effect on safety through deterrence, in accordance with the 'blame culture' cultivated in the late 1990s.

The Chicago Convention (1944) does not define the paradigms of transparency and legal certainty. It essentially sets forth safety-related principles that must be codified in its Contracting States. For records collected during the technical investigations, it was found that studied jurisdictions *in abstracto* support the principle of protecting aviation personnel for the sake of enhancing aviation safety. However, in the realm of international air law, such a stance does not comply with vertical transparency in its full aspects. That said, in none of the case studies within the jurisdictions selected in Chapter 4, was it was observed that the safety paradigm, in actual fact, restricted the transparency paradigm in the sense of not allowing disclosure.

6.3.4 The need for clarity

The main findings presented above suggest that pilots' criminal liability is not as precisely regulated as aviation practice and the legal certainty paradigm may require. The ever-changing approaches that involve stakeholders in this process, including States, international organisations, public prosecutors, and groups protecting victims' rights, as well as the evolution of transparency towards a prosecution approach, all lead to reduced clarity. The systems continue to change whenever changes prove to be necessary.[13]

11 *See* Chapter 4.
12 Section 2.2.4 of this research.
13 Sections 1.7 and 3.4.2 of this research.

Because it is unclear what constitutes behaviour that could give rise to criminal liability, this can moreover block reporting of such behaviour under Just Culture. Only if the law provides proper accessibility, foreseeability, and predictability can Just Culture function to protect the paradigms of safety, transparency and legal certainty.

It is important further that normative clarity is not only objectively achieved but, given the principal role and expertise of pilots and their broad discretion, also be strongly fulfilled from their particular subjective and their collective-subjective perspectives. As such, the interpretation of norms and the assessment of pilot behaviour should also be based on the common and shared understanding of pilots.

When legal certainty is lacking from (general) pilot perspectives, it becomes even more challenging to establish criminal liability. Again, this will increase the hazard of under-reporting due to the risk of prosecution. The achievement of greater clarity is therewith also of critical importance in that sense.

6.4 Recommendations

6.4.1 Preliminary remarks

In the absence of dominance of any of the paradigms, this study concludes that the norms for establishing criminal liability of pilots are not always as clear as the legal certainty paradigm requires. In that light, this study aims to provide recommendations to achieve balance and harmonisation in paradigms and to aid ICAO, States, organisations, and individuals in promoting safety in aviation and fair administration of justice.

In this research, each recommendation is directed at a different actor, meaning that the ability to implement them depends on the specific circumstances of the situation, resources, and competencies of ICAO, States, organisations and pilots as individuals in the aviation chain. Unlike scenarios where all recommendations apply to a single actor, pursuant to which prioritisation could be determined based on factors such as safety, economic impact, or social considerations, the fragmented and incoherent applicability of the said paradigms does not help to establish a clear order of precedence. Therefore, while prioritisation is often a useful tool in guiding implementation efforts, it is not viable in this case as it will be acknowledged in the dissertation. Ultimately, the extent to which each recommendation is implemented and pursued depends on the discretion and capacity of the relevant actors, especially States and their public bodies.

6.4.2 Recommendations as to the harmonisation of paradigms

The ideal solution would be to establish a comprehensive and standardised framework to address current inconsistencies while promoting harmonisation of safety standards, legal certainty, and transparency with respect to pilot criminal liability. However, as remarked several times in this research, it is an impossible task to find a harmonised balance between the various paradigms in an ever-changing world, in which jurisdictions wish to find that balance in accordance with their own policy and legal parameters, including in the application of their criminal law to pilots.

When exploring a new balanced framework for the criminal liability of pilots, it is of fundamental importance to keep in mind that special consideration is particularly required for the human element of the safety paradigm, also given that there are generally fewer aviation accidents than in the past, and due to (only) human error, in particular. This framework should incorporate clear definitions of criminal offences related to aviation, including distinctions between negligence, recklessness, and intentional misconduct. Secure definitions form a necessary basis for the effective functioning of Just Culture, including achieving and maintaining the mindset all persons in aviation are encouraged to have. Additionally, efforts should be made to harmonise definitions, mostly in ICAO Annexes and other technical instruments, ensuring alignment with global aviation standards.

Furthermore, legal systems should prioritise enhancing horizontal transparency while safeguarding sensitive investigation-related information. This goal can be achieved by developing mechanisms to share essential safety-related information with relevant stakeholders while preserving privacy and security concerns. Establishing uniform reporting and investigation protocols, guided by international best practices, would contribute to transparency.

The aviation industry should collaborate with governmental authorities to create a culture of safety and define the responsibilities of stakeholders who are involved with civil aviation. Encouraging voluntary reporting and learning from incidents without the immediate threat of criminal prosecution can help foster a Just Culture within aviation. This approach should be incorporated into national legal frameworks to distinguish between genuine safety lapses and criminal acts.

Achieving a balanced regime founded on the harmonisation of these paradigms requires interdisciplinary collaboration between aviation experts, legal scholars, policymakers, and international aviation organisations. At the same time, tension between the paradigms should not be regarded as an obstacle to achieving a balanced regime. Every accident is different, whereas the weight and significance of each paradigm may differ in each case and, as said, in each jurisdiction. Tension may, as such, not be removed

entirely but can be alleviated. Developing a shared understanding of the complexities of air law and safety considerations is crucial to ensuring a fair and effective pilot criminal liability regime that serves the aviation industry and the broader public interest.

6.4.3 Recommendations for ICAO

ICAO has served for nearly eighty years as a global forum for standardisation, especially with respect to the safety of international civil aviation, and for the preparation of international agreements. In its history, pilots' criminal liability has long been on its agenda and remains one of its concerns.

ICAO ought to continue to provide platforms for Member States to discuss and exchange views on the criminal liability of pilots. Collection and management of such views may significantly add to the clarity in this respect. These discussions can help identify common challenges, allow for the sharing of experiences, and work towards international consensus.

The Task Force group on the obligations under Article 12 of the Chicago Convention (1944) is a great example. It has studied the status of implementation of Article 12 of participating States and shared their experiences.[14] In this group, States could also discuss avenues for implementation and provide supporting tools for Contracting States.[15]

As a global forum, ICAO is best equipped to collect global best practices through regular review of existing and emerging legal frameworks of Contracting States. ICAO can conveniently facilitate collaboration with legal experts and aviation industry stakeholders while sharing relevant information among the Contracting States of ICAO. Collecting best practices may also include the creation of a repository of relevant judgments, which could aid in legal interpretations of courts.

While continuous standardisation and uniform application of SARPs is one way to enhance safety and clarity, States may lack the technical and financial resources for further implementation and oversight. Knowing that observation of the compliance status with flight and manoeuvre rules contained in ICAO Annexes, which is identified in the analysis of Article 12,[16] can be achieved through State oversight, the lack of competence and

14 Ch 4 of this research. *See also*, ICAO, *Legal Committee Working Paper LC/38-WP/2 Consideration of other items on the general work programme of the legal committee (2022).*

15 Ch 4. *See also*, ICAO, *Legal Committee Working Paper LC/38-WP/2 Consideration of other items on the general work programme of the legal committee (2022).*

16 Ch 3 of this research. *See also* Chicago Convention (1944), art 17 on the nationality of the aircraft. Prof. Huang claims that this provision, next to Article 12, implies an obligation of the State of registry for State oversight-related responsibilities. Huang J, *Aviation Safety and ICAO* (PhD thesis, Leiden University 2009) 22.

resources is certainly an issue. In this regard, technical assistance provided by RASOs and the Cooperative Development of Operational Safety and Continuing Airworthiness Program (COSCAP) under the umbrella of ICAO is also worth continuing and expanding.

ICAO could also be tasked with promulgating standardised definitions and classifications of offences related to aviation events coming under Article 12 of the Chicago Convention (1944). ICAO can also provide insights by drawing up its own conceptualisation of various degrees of culpability, such as negligence, recklessness, and intentional misconduct, providing clearer guidance to Contracting States of the Chicago Convention (1944). An example of a similar nature is the Manual on the Legal Aspect of Unruly and Disruptive Passengers,[17] which guides States in applying the provisions of the Tokyo Convention (1963).

6.4.4 Recommendations for States

Enhancing clarity as to the criminal liability of pilots requires a comprehensive approach from States in the joint application of air law and common criminal law in a domestic context, in conjunction with the three paradigms engaged in this research. With the obligations for the implementation and enforcement of SARPs being left to States and criminal prosecution being their exclusive competence, there is a significant role to be played by States in enhancing the clarity with respect to the criminal liability of pilots.

States are responsible for the notification of differences and the uniform implementation of the application of flight and manoeuvre rules under Article 12 of the Chicago Convention (1944).[18] The conditional binding force and nature of SARPs, as well as the release of new or amended SARPs, also emphasises the important role of States and their particular responsibilities in this respect as Contracting States of ICAO.

According to the GASP, that is, the ICAO Global Aviation Safety Plan, or RASP, that is, the Regional Aviation Safety Plan, States may also issue the State Safety Program (SSP) as a tool to conduct oversight and enhance clarity with respect to the criminal liability of pilots. As the SSP should explain the overarching legal and policy goals in protecting safety within States, stakeholders, including organisations and individuals, can benefit from the clarity that the SSP provides. Because all components of the SSP can be linked to the criminal liability of pilots, it may function as the best means to share clarity domestically, as well as in a publicly available and accessible manner.

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17 ICAO, *Doc 10117 – Manual on the Legal Aspects of Unruly and Disruptive Passenger* (1st edn, 2019).

18 ICAO, *Legal Committee Working Paper LC/38-IP/2 Nota Informativa Artículo 12 del Convenio de Chicago* (2022) 3.

However, despite the high implementation of SARPs and issuance of the SSP, this research identified that the efficacy of the prevailing domestic legal regimes, in which both aviation law and criminal law are laid down, is less convincing than as declared by States. In terms of balanced and harmonised paradigms, the MoU between the prosecutorial office of the UK and accident investigation boards, which requires the High Court's decisions, is a practical solution that other Contracting States of ICAO can use as a benchmark. Such an MoU is and could be designed to create transparency and timely exchange and sharing of information domestically about investigations, prosecutions, and judicial decisions. Even though an MoU has no binding force, parties to such an MoU can share the common understanding that there is a complex interaction of the safety and transparency paradigms and the impact thereof on legal certainty.

Last but not least, it is essential for States to understand that in the context of civil aviation, prosecution should primarily aim to enhance safety rather than to punish. Therefore, creating bases for criminal liability and deploying administrative punitive sanctions without reflecting on the special context of aviation would be inappropriate and ineffective. Punitive enforcement should not be the ultimate solution to protect safety. Consideration of the special context must also include awareness of the importance of promoting voluntary monitoring and fostering Just Culture as a critical means of proactive safety management. As for human error, management of safety is better promoted by the development of proper training of pilots for (emerging) human risks rather than punishment.

6.4.5 Recommendations for organisations[19]

The recommendations in this section (6.4.5.) refer to two types of organisations: the organisations referred to in ICAO Annex 19 and interest groups. As the most prominent organisation in this context, ICAO has already been evaluated in section 6.4.3, above.

Annex 19 organisations include airlines for commercial aviation, or pilots, or enterprises involved in general aviation operations.[20] These types of organisations are subject to State oversight functions in relation to Article 12 of the Chicago Convention (1944). ICAO recognises the importance of these organisations as factors affecting safety.[21]

IATA for airlines and IFALPA for pilots are examples of organisations that are interest groups. Mainly formed of corporates or domestic associations,

19 By the "operator," I mean the airlines in the context of ICAO Annex 6 which operate the aircraft. See Section 2.2.5 of this research.

20 *See* Section 3.4.1.4 of this research on ICAO Annex 6.

21 Section 2.2.5 of this research.

organisations that fall under this category are not subject to State oversight. Nevertheless, these types of organisations influence aviation safety, as safety is one of their interests. They are represented as observers in various international discussions, which include the ICAO Assembly. Their opinions have been quoted in this research.

All such organisations can influence pilots' behaviours and, therefore, impact criminal liability. With diverse responsibilities for ensuring pilot compliance with local and foreign flight and manoeuvre rules,[22] and as an element of the safety paradigm,[23] such organisations, including airlines, may realistically acquire greater clarity by studying and educating pilots.[24]

Lastly, organisations must use all resources developed by the States, ICAO, and other actors to foster a safety culture. Training and education for pilots in order to achieve clarity concerning the legal aspects of aviation accidents and potential criminal liability can achieve two objectives. It can increase awareness of the complex legal landscape, which encompasses the responsibilities of pilots, and will eventually enhance the legal framework's foreseeability, accessibility, and efficacy.

6.4.6 Recommendations for pilots

As front-line human operators, pilots must adhere to prevailing regulations. The best method to ensure safety and avoid prosecution is to comply with flight and manoeuvre rules as implemented domestically and shared in the AIP.[25] Pilots are obliged to avoid violations, such as flying lower than the prescribed altitudes, being under the influence of alcohol during operations, and adhering to flight procedures and safety protocols.

Pilots must ensure that all actions and decisions comply with established rules and standards. Pilots should be aware and stay informed about international and domestic air and criminal law, their responsibilities, and potential criminal liability. Fulfilling pre-flight duties means that pilots are aware of the existing regulations, in the form of local flight and manoeuvre rules. In case of doubt, pilots should consult legal experts, in which event professional organisations like IFALPA may help.[26]

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22 Section 3.4.1.4 of this research on ICAO Annex 6.

23 Ch 2 of this study

24 A clear example is the safety culture studies conducted with the cooperation of the European Cockpit Association (ECA), which is a member of IFALPA, which could conduct surveys for more than 6,000 pilots all over Europe. Organisations can initiate such empirical research based on the findings of this study, aiming at forming clarity from the pilots' perspectives to be translated into the "collective-subjective standards." Similarly, IATA can support its member airlines by sharing clarity with airlines that require more assistance.

25 See references made on the use of the AIP in Ch3 and also the contents of the AIP in Ch 4 of this research.

26 *See* Section 5.5.5 of this research.

As special norm addressees which can create the collective-subjective foreseeability, pilots may support their own organisations, States and ICAO to enhance coherence and clarity of the paradigms and relevant legal framework concerning their criminal liability. Their support may, for instance, take place by active participation in surveys or discussions of which the result forms empirical evidence to define the right course of actions. This will eventually become a foundation of the collective-subjective legal clarity.

Clarity based on the rigid application of existing law may not enhance safety. Ultimately, what matters is the safety-first mindset, which can be represented by the concept of 'airmanship'.

Education and training for a candidate to become a pilot guides future professionals to embrace airmanship and enhance their confidence in safety protection. Pilots must prioritise safety in all flight operations. Pilots can demonstrate their *safety-first* mindset by committing to the safety culture that their organisations foster, which can positively influence outcomes. This mindset includes a commitment to continuous training, collaboration, open communication, and cooperation in reporting in the event of accident investigations.

Last but not least, IFALPA may assist its individual members on a global scale. As mentioned earlier, the survey with over 7,000 respondents was successful only with the help of the ECA.[27] Next to this, IFALPA can clarify critical legal matters, i.e., balance in the paradigms or the difference between Just Culture and full immunisation in support of the paradigm of safety.

6.4.7 General recommendations/final remarks

Crystal clarity in the civil aviation legal system is not feasible and unrealistic.[28] Air law is standardised for promoting safety and security globally. Therefore, uniformity may be achievable only to the extent margins allow for the promotion of safety under each State's ALoSP framework.[29] ICAO not only guides States in establishing an ALoSP but also aims to achieve a high level of implementation of SARPs globally. This effort has been succeeding in many but not all jurisdictions.

Not all Standards are written in the technical language, however. As an example, Safety Culture is, as the term grammatically suggests, about cul-

27 Section 5.5.5 of this research.

28 *See* above Section 5.5.6 of this research.

29 ICAO, *Safety Management Manual (2018)* (Doc 9859, 4th edn, 2018) (vii): The level of safety performance agreed by State authorities to be achieved for the civil aviation system in a State, as defined in its State safety programme, expressed in terms of safety performance targets and safety performance indicators.

ture. The manner in which safety unpacks in a particular jurisdiction is, in part, indeed not determined by law but also by culturally determined perspectives on safety. Likewise, criminal law and its operation are governed by domestic perspectives, also featuring cultural aspects which determine what the foreseeability of consequences means. What is evident in one jurisdiction in such respects may not be apparent in others.

Nevertheless, one thing seems clear: everything revolves around *aviation safety*. Safety, Legal Certainty, and Transparency paradigms may protect their values in the way determined by different cultures and languages, but nowhere is it held that safety should be compromised. Ultimately, therefore, from the perspective of civil aviation, all paradigms engaged in this research, including Just Culture and the fair administration of justice, all work towards the promotion of safety.

This study is an effort to provide insight into the historical development and operation of the criminal liability of pilots in international civil aviation. At one point in the future, with the introduction and revisions of SARPs providing greater clarity and the operation of enhanced mechanisms for protecting safety, Just Culture, which may have adverse effects, may become unnecessary. Likewise, greater clarity as to substantive norms may reduce the need for prosecution, which, as discussed above, may also have adverse effects. Where necessary, prosecution should remain a tool to enhance safety and not become an obstacle to it. In that light, in any decision-making as to prosecution and establishment of the criminal liability of pilots, protecting safety should always be a paramount consideration. The same holds for transparency and legal certainty, as well as the relationship and balance between the three paradigms.

Last but not least, clarity needs the support of all actors in international civil aviation, including ICAO, States, organisations, and individuals.

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7.2.1 ICJ

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Samenvatting (Dutch Summary)

Strafrechtelijke Aansprakelijkheid van Piloten bij Luchtvaartongevallen

Dit proefschrift beoogt een juridische analyse te verschaffen van de strafrechtelijke aansprakelijkheid van piloten bij luchtvaartongevallen. Deze analyse is bedoeld om antwoord te geven op de centrale onderzoeksvraag:

> *Hoe reguleren internationale en nationale rechtsstelsels de strafrechtelijke aansprakelijkheid van piloten binnen de context van de paradigma's Veiligheid, Transparantie en Rechtszekerheid en op welke manieren kan de samenhang tussen en duidelijkheid van deze paradigma's worden verbeterd?*

Dit onderzoek richt zich op factoren rondom piloten, met name hun strafrechtelijke aansprakelijkheid bij ongevallen in de burgerluchtvaart, binnen de geïdentificeerde paradigma's – Veiligheid, Transparantie en Rechtszekerheid – in het specifieke reguleringsdomein van het luchtvaartstrafrecht. De analyse belicht de complexiteit die voortkomt uit de samenloop van het luchtrecht, dat grotendeels internationaal wordt gereguleerd, en het strafrecht, dat voornamelijk nationaal wordt toegepast. Zonder gebonden te zijn aan een specifieke variant van rechtszekerheidsnormen, onderzoekt deze studie het juridische kader met als doel de samenhang en duidelijkheid tussen deze paradigma's te verbeteren.

Hoofdstuk 1 introduceert de omvang van het onderzoek. Hoewel de piloot, naast andere belangrijke actoren binnen de luchtvaartveiligheid, een cruciale rol speelt in het waarborgen van veiligheid, heeft de *International Civil Aviation Organization* (ICAO) geen specifieke juridische definitie van de term 'piloot' geformuleerd. Daarom begint dit onderzoek met het afbakenen van de technische en juridische reikwijdte, waarbij piloten worden gedefinieerd als diegene die gecertificeerd zijn volgens ICAO Annex 1 bij het Verdrag inzake de internationale burgerluchtvaart (Chicago Verdrag, 1944).

Vanuit deze afbakening legt de studie uit waarom de luchtvaart inherent complex is, met name door de technische aard van de sector, wat heeft geleid tot een internationaal georiënteerd juridisch kader dat specifieke technische kennis vereist. Wanneer dit kader echter in aanraking komt met het nationale strafrecht, wordt de toerekening van strafrechtelijke aansprakelijkheid verder gecompliceerd. De complexiteit van dit 'gekoppeld' rechtsgebied hangt bovendien nauw samen met de werking van de overkoepelende paradigma's.

De literatuurstudie toont aan dat een uitgebreide en veelzijdige verkenning van dit onderzoeksonderwerp ontbreekt. Verschillende wetenschappers hebben inhoudelijk onderzoek verricht vooral vanuit het perspectief van luchtvaartveiligheid terwijl dit onderzoek, via een bredere benadering, ook het perspectief van rechtszekerheid betrekt in de analyse.

Deze studie bevat een analyse van zowel juridische als niet-juridische bronnen, waarbij verschillende methoden worden toegepast op elk type bron. Internationale juridische bronnen, zoals geïdentificeerd door het Internationaal Gerechtshof, worden geanalyseerd naast de technische instrumenten van ICAO. Daarnaast worden zowel kwalitatieve als kwantitatieve gegevens verzameld via een internationale database en een enquête, die gedurende de looptijd van het onderzoek is uitgevoerd.

Hoofdstuk 2 is gewijd aan de paradigma's die de luchtvaart en strafrechtelijke aansprakelijkheid reguleren. Elk van de geïdentificeerde paradigma's – Veiligheid, Transparantie en Rechtszekerheid – heeft een eigen karakter en specifieke elementen, vertegenwoordigt individuele waarden en beïnvloedt elkaar onderling.

Het veiligheidsparadigma bestaat uit technische, menselijke, organisatorische en systematische elementen die dynamisch op elkaar inwerken in het kader van het Chicago Verdrag (1944). In de vroege luchtvaartgeschiedenis lag de nadruk op technische aspecten en het voorkomen van ongevallen. Naarmate de veiligheid via internationale standaardisering werd verbeterd, begon de internationale burgerluchtvaartgemeenschap menselijke factoren te erkennen als een integraal onderdeel van luchtvaartveiligheid en als een mogelijke oorzaak van ongevallen. Vanaf de jaren 1990 werd men zich steeds meer bewust van de invloed van belanghebbende instellingen, zoals luchtvaartmaatschappijen, op individuen – met name piloten – bij het ontstaan en voorkomen van ongevallen. In de vroege jaren 2000 kwam er meer aandacht voor de interactie tussen alle betrokken partijen in de luchtvaartsector, van ICAO en staten tot organisaties, ondernemingen en individuen zoals piloten. Hoewel piloten altijd een centrale rol blijven spelen in de luchtvaart, heeft de evolutie van veiligheidsbenaderingen invloed op de manier waarop de diverse jurisdicties de strafrechtelijke aansprakelijkheid van piloten beoordelen.

Het transparantieparadigma, dat onderverdeeld is in twee aspecten – verticaal en horizontaal – wordt in zijn juridische dimensie erkend als een mensenrecht, met name onder het recht op informatie en vrijheid van meningsuiting. Dit concept wordt beschermd en uitgewerkt door verschillende internationale en nationale juridische kaders. De invloed van transparantie op de strafrechtelijke aansprakelijkheid van piloten komt vooral tot uiting bij technische ongevalsonderzoeken.

Volgens ICAO Annex 13 is het primaire doel van deze onderzoeken om de oorzaken van een ongeval vast te stellen, zonder schuld toe te wijzen. Het in de 21ste eeuw in zwang gekomen concept '*Just Culture*' legt juist de nadruk legt op het leren van eerlijke fouten die zijn begaan bij een ongeval, in plaats van het bestraffen van betrokken. In beide gevallen kan verticale transparantie, die de relatie tussen overheid en burgers weergeeft, worden beperkt door restricties en de niet-openbaarmaking van bepaalde gegevens uit het onderzoek. De beperkte verticale transparantie draagt bij aan de versterking van horizontale transparantie. Horizontale transparantie verwijst naar de uitwisseling van informatie en openheid tussen gelijken binnen een systeem, wat op zichzelf een intrinsieke waarde heeft. Het bevordert de open communicatie tussen piloten en betrokkenen bij technische ongevalsonderzoeken en stimuleert een leercultuur als deel van een veiligheidscultuur binnen de luchtvaartsector. Hoewel transparantie niet per definitie de toepassing van strafrechtelijke aansprakelijkheid beperkt, kan het wel de samenhang en duidelijkheid van het juridische kader verstoren. Hieronder ontstaan een spanningsveld tussen de noodzaak van openheid en de juridische consequenties voor piloten en andere luchtvaartprofessionals.

Rechtszekerheid vormt de kern van de toepassing van het strafrecht. Dit principe vereist dat de wet duidelijk en voorspelbaar is. Deze waarde wordt bepaald door twee kwalitatieve vereisten: voorzienbaarheid en toegankelijkheid. Hoewel deze vereisten als absolute waarden worden beschouwd, spelen binnen het luchtvaartstrafrecht, als een bijzonder reguleringsdomein, specifieke factoren een rol bij de invulling daarvan. Deze bijzondere invulling komt voort uit de unieke variabelen van dergelijke domeinen, zoals het collectieve juridische belang van veiligheid, de brede aansprakelijkheidsconstructies met een combinatie van materiële en procedurele normen, de technische aard van de sector en de specifieke norm-adressanten – namelijk piloten. De paradigma's van transparantie en veiligheid beïnvloeden onmiskenbaar de rechtszekerheid en veroorzaken spanningen binnen dit specifieke reguleringsdomein van het luchtvaartstrafrecht, vooral wanneer het gaat om strafrechtelijke aansprakelijkheid.

Hoofdstuk 3 laat tevens zien hoe het onderwerp van dit proefschrift op internationaal niveau wordt gereguleerd en welke zorgen er bestaan over de samenhang en duidelijkheid binnen dit juridische kader, met specifieke aandacht voor de artikelen 12 en 26 van het Chicago Verdrag (1944). Deze bepalingen illustreren de interacties en spanningen tussen de paradigma's die in hoofdstuk 2 zijn besproken. Artikel 12 is de enige bepaling in het Chicago Verdrag (1944) die expliciet verwijst naar 'vervolging'. Deze bepaling richt zich op de naleving van de luchtverkeersregels en voorziet in een verplichting tot vervolging bij overtredingen daarvan. Tegelijkertijd staat deze bepaling in nauwe relatie tot Artikel 26 van datzelfde verdrag, dat betrekking heeft op ongevalsonderzoeken. Deze laatste bepaling regelt het onderzoek naar luchtvaartongevallen, waarbij de nadruk ligt op veiligheid

en preventie, zonder noodzakelijkerwijs strafrechtelijke aansprakelijkheid te koppelen aan de uitkomsten van het onderzoek. De verhouding tussen deze bepalingen weerspiegelt brede juridische en praktische uitdagingen binnen het luchtrecht, waar de plicht tot handhaving en vervolging (artikel 12) soms in spanning staat met de noodzaak tot een *blame-free* onderzoekscultuur (artikel 26).

Artikel 12 van het Chicago Verdrag (1944) is op complexe wijze geformuleerd en omvat kernwaarden zoals naleving, technische standaardisatie en uniformiteit, waarbij toepassing dynamisch blijft, met name in de context van vervolging bij niet-naleving. De vlieg- en manoeuvreerregels, vastgelegd in ICAO Annexen 1, 2, 6 en 11, bepalen de taken en verantwoordelijkheden van piloten. Volgens artikel 12 kunnen overtredingen van deze regels leiden tot vervolging.

Artikel 26 verplicht verdragsstaten tot het uitvoeren van technische luchtvaartongevallenonderzoeken met als primair doel het voorkomen van herhaling van ongevallen, conform ICAO Annex 13. De bepalingen in Annex 13 beïnvloeden strafrechtelijke afwegingen bij luchtvaartongevallen, met name binnen het spanningsveld tussen veiligheid en transparantie. Dit spanningsveld ontstaat doordat Annex 13 maximale horizontale transparantie nastreeft—waarbij informatie-uitwisseling binnen de luchtvaartsector (zoals tussen luchtvaartautoriteiten, maatschappijen en piloten) wordt bevorderd—terwijl verticale transparantie (de mate waarin de overheid informatie deelt met burgers en het bredere publiek) juist beperkt blijft.

Deze beperking houdt in dat bepaalde onderzoeksgegevens niet openbaar worden gemaakt of niet mogen worden gebruikt voor strafrechtelijke vervolging. Hierdoor ontstaat een spanningsveld tussen de doelstelling om een veiligheidscultuur te bevorderen door openheid en informatie-uitwisseling, en de juridische consequenties die voortvloeien uit de bescherming van ongevalsgegevens. Dit benadrukt de delicate balans tussen veiligheid, transparantie en strafrechtelijke aansprakelijkheid binnen de luchtvaartsector.

ICAO Annex 13 sluit echter strafrechtelijke vervolging of andere juridische onderzoeken niet uit. Hoewel het primaire doel van de technische onderzoeken onder ICAO Annex 13 is om op basis van feitelijke bevindingen herhaling van ongevallen te voorkomen door de bescherming van ongevalsgegevens die tijdens het onderzoek worden verzameld, stelt Annex 13 nergens dat vervolging uitgesloten moet worden. Bovendien strekt de in artikel 12 neergelegde verplichting tot vervolging zich verder uit dan enkel ongevallen en valt deze daarmee buiten de reikwijdte van ICAO Annex 13.

Dit spanningsveld tussen de primair technische aard van Annex 13 en de juridische handhavingsverplichting van artikel 12 draagt bij aan de veranderende inzichten binnen de sector over de criminalisering van luchtvaart-

ongevallen. Waar de focus aanvankelijk volledig op veiligheid lag, ontstaat er nu een dynamiek waarin transparantie, gegevensbescherming en strafrechtelijke aansprakelijkheid steeds vaker met elkaar in conflict komen. In situaties waarin geen sprake is van een ongeval, vallen overtredingen onder ICAO Annex 19, die strafrechtelijke vervolging niet noodzakelijkerwijs uitsluit.

Deze kenmerken weerspiegelen de bijzondere reguleringsdimensie van het luchtvaartstrafrecht, zoals besproken in hoofdstuk 2, en onderstrepen de complexiteit van strafrechtelijke aansprakelijkheid binnen deze sector. Met name het gebrek aan voorzienbaarheid in de toepassing van specifieke reguleringsnormen brengt twee belangrijke aandachtspunten met zich mee. Ten eerste vereist de implementatie van SARPs binnen nationale richtlijnen, evenals de wisselwerking tussen luchtrecht, luchtvaartstrafrecht en het algemene strafrecht, een diepgaande analyse van hoe deze normen zich vertalen binnen nationale jurisdicties. Aangezien de criminalisering van luchtvaartongevallen niet uitsluitend een internationaal vraagstuk is, maar mede afhankelijk is van nationale wetgeving en rechtshandhavingspraktijken, is het essentieel om te onderzoeken hoe deze juridische principes in verschillende staten worden geïnterpreteerd en toegepast. Daarnaast is het van belang te analyseren hoe piloten deze interpretaties en toepassingen collectief-subjectief begrijpen. De mate waarin piloten een gedeeld juridisch bewustzijn ontwikkelen, beïnvloedt niet alleen hun besluitvorming in de praktijk, maar ook de voorzienbaarheid van hun strafrechtelijke aansprakelijkheid. Hoofdstukken 4 en 5 onderzoeken deze aspecten in detail.

Hoofdstuk 4 onderzoekt de nationale juridische kaders die de strafrechtelijke aansprakelijkheid van piloten reguleren in de Verenigde Staten (VS), het Verenigd Koninkrijk (VK) en de Republiek Korea (ROK). Deze staten hanteren een zorgvuldige implementatie van SARPs, met een gemiddelde implementatiegraad van 93,9%—hoger dan het mondiale gemiddelde (rond 70%, stand per oktober 2024). Ondanks deze hoge nalevingsgraad is volledige standaardisatie nog niet bereikt. Dit leidt tot juridische en operationele uitdagingen, met name op het gebied van luchtvaartveiligheid en rechtszekerheid, aangezien verschillen in nationale interpretaties en toepassing van SARPs gevolgen kunnen hebben voor de strafrechtelijke beoordeling van luchtvaartongevallen.

In deze jurisdicties kan vervolging, afhankelijk van de feiten en omstandigheden van luchtvaartongevallen plaatsvinden op basis van het algemene strafrecht of specifieke luchtvaart-gerelateerde overtredingen, waarbij zowel internationale als nationale luchtvaartregelgeving een rol speelt. Hoewel artikel 12 van het Chicago Verdrag (1944) vervolging voorschrijft voor overtredingen van de vlieg- en manoeuvreerregels, richt de handhaving zich in de praktijk voornamelijk op gevallen waarin schade aan mensenlevens of eigendommen is veroorzaakt.

In dergelijke situaties vindt vervolging niet noodzakelijkerwijs plaats op basis van luchtvaartwetgeving en de daarin vervatte bijzondere luchtvaartdelicten, maar eerder onder het algemene strafrecht. In veel gevallen leiden overtredingen voorts tot administratieve sancties of civielrechtelijke aansprakelijkheid, in plaats van strafrechtelijke vervolging door openbare aanklagers of gespecialiseerde instanties, zoals de burgerluchtvaartautoriteiten in het VK.

Een analyse van relevante jurisprudentie toont de complexe wisselwerking tussen internationaal en nationaal luchtrecht, het algemene strafrecht en bijzondere luchtvaartdelicten. Hoewel de kernparadigma's—Veiligheid, Transparantie en Rechtszekerheid—allemaal effect hebben binnen het juridische kader en rechterlijke uitspraken, domineert geen enkel paradigma volledig. Dit onderstreept de balans en spanning tussen de verschillende juridische en operationele belangen in de regulering van strafrechtelijke aansprakelijkheid binnen de luchtvaartsector.

Hoofdstuk 5 onderzoekt hoe een collectief-subjectieve benadering kan bijdragen aan rechtszekerheid binnen het luchtvaartstrafrecht, op het gebied van voorzienbaarheid. Zoals uiteengezet in hoofdstuk 2, wordt het bijzondere strafrecht binnen de beleidsordenende domeinen gekenmerkt door specifieke factoren, die invloed hebben op de mate waarin voorzienbaarheid wordt verlangd. Tot uitgangspunt kan worden genomen dat de luchtvaart geldt als een domein waarin flexibiliteit mogelijk is in dit verband en dat piloten zijnde gezagvoerders die de uiteindelijke beslissingsbevoegdheid dragen, aangemerkt kunnen worden als normadressaten met verhoogde zorgplichten, waaronder ook hun vermogen te voorzien. met en de sector wordt gekenmerkt door. Piloten bevinden zich in een unieke positie, omdat zij zowel in theorie als in de praktijk, binnen een context van technische complexiteit en hoge risico's, worden beschouwd als primaire verantwoordelijken voor de veilige operatie van het vliegtuig. Bovendien zijn hun taken breed geformuleerd, wat hen een aanzienlijke discretionaire bevoegdheid verleent. Zoals ook het Europees Hof voor de Rechten van de Mens erkent, kunnen binnen het bijzondere strafrecht alternatieve evaluatiecriteria worden toegepast, afhankelijk van de specifieke kenmerken van het gereguleerde domein.

Waar voorzienbaarheid in het algemeen word beoordeeld aan de hand van objectieve maatstaven (van een redelijk handelend persoon), wordt voorzienbaarheid bij bijzondere normadressaten meer subjectief beoordeeld, aan de hand van de kenmerken en zorgplichten van de normadressaat. Ofwel, de subjectieve voorzienbaarheid van een piloot wordt dan geëvalueerd in het licht van de bredere context van zijn professionele, operationele en gereguleerde werkomgeving. De gespecialiseerde en hooggekwalificeerde aard van de functie kan aldus met zich meebrengen dat van een piloot meer wordt verwacht in termen van de mogelijkheid om te 'voorzien,'

waardoor ook eerder sprake zal zijn van voldoende subjectieve voorzienbaarheid. In dit onderzoek wordt voorgesteld dat daarnaast, gelet op het internationale karakter van luchtrechtnormen en het streven naar uniformiteit, voorzienbaarheid in deze context ook nader bepaald kan worden aan de hand van wat ik een collectief-subjectieve benadering noem. In een collectieve benadering kan voorzienbaarheid wordt bepaald aan de hand van gedeelde opvattingen van piloten over standaarden. Voor zover zij gemeenschappelijke opvattingen hebben, kan dat een indicatie zijn voor hoge voorzienbaarheid en vice versa. In de collectieve-subjectieve benadering zou voorzienbaarheid dan kunnen worden bepaald door beoordeling van voorzienbaarheid vanuit het perspectief van een individuele piloot, alsook vanuit de collectieve dimensie. Deze collectief-subjectieve benadering kan bijdragen aan rechtszekerheid door een gedeelde, internationaal vastgelegde kennisbasis mede als norm te hanteren, in plaats van een strikt geïndividualiseerde of objectieve beoordeling van schuld. Deze benadering benadrukt dat piloten niet in isolement handelen, maar beïnvloed worden door training, standaard operationele procedures en regelgevende richtlijnen.

Flexibiliteit in de beoordeling van voorzienbaarheid is essentieel in sectoren zoals de luchtvaart, waar algemene strafrechtelijke benaderingen mogelijk ontoereikend zijn om de complexiteit van operationele besluitvorming en de invloed van externe factoren adequaat te wegen. Tegelijkertijd dient de voorzienbaarheid te worden bewaakt. Uitgaande van het nut van de collectief-subjectieve benadering, geef ik in hoofdstuk 5 de resultaten van een onderzoek weer, waarin de praktische toepasbaarheid van deze collectief-subjectieve benadering is onderzocht.

Een enquête onder meer dan 100 piloten is uitgevoerd, waarvan 44 respondenten de vragenlijst volledig hebben afgerond. De enquête richtte zich op luchtvaartveiligheid, de juridische status van piloten, het internationale juridische kader en de interpretatie van drie historische luchtvaartongevallen.

De resultaten wijzen erop dat piloten een collectief-subjectief juridisch bewustzijn ontwikkelen op basis van internationaal erkende standaarden. Bij vragen over hun theoretische kennis van strafrechtelijke aansprakelijkheid—waarbij respondenten hun eigen bewustzijn moesten beoordelen—gaven zij vaak aan zich hiervan bewust te zijn. Daarnaast was er grotendeels overeenstemming over de operationele beslissingen van hun collega's.

Echter, hoewel er brede consensus bestond over operationele beslissingen, wijst de variatie in juridische oordelen erop dat er binnen de beroepsgroep geen uniforme interpretatie van strafrechtelijke aansprakelijkheid bestaat. Uit de enquête blijkt bovendien dat de meningen over strafrechtelijke aansprakelijkheid en de beoordeling van pilotenprestaties sterker uiteenliepen.

Deze divergentie duidt erop dat de voorzienbaarheid met betrekking tot strafrechtelijke aansprakelijkheid laag is, wat betekent dat piloten een beperkt bewustzijn hebben van hoe strafrechtelijke verantwoordelijkheid wordt toegekend.

Hoofdstuk 6 presenteert de belangrijkste bevindingen van dit proefschrift en de bijbehorende aanbevelingen. De strafrechtelijke aansprakelijkheid van piloten wordt beïnvloed door drie vaak conflicterende juridische paradigma's: Veiligheid, Transparantie en Rechtszekerheid. Het veiligheidsparadigma richt zich primair op ongevalspreventie, terwijl het rechtszekerheidsparadigma vereist dat wetgeving duidelijk en voorspelbaar is. Transparantie brengt extra complicaties met zich mee, omdat technische ongevalsonderzoeken, die bedoeld zijn om veiligheidsverbeteringen te stimuleren, soms beperkt toegankelijk worden gehouden, ook om gebruik in strafrechtelijke procedures te voorkomen. Dit leidt tot een spanningsveld tussen openheid en juridische duidelijkheid, waardoor rechtszekerheid in de praktijk niet altijd gewaarborgd is.

Just Culture, dat piloten wil beschermen tegen oneerlijke juridische consequenties, is nog niet wereldwijd toegepast laat staan geharmoniseerd. Hoewel het een belangrijke rol speelt in het bevorderen van een meldcultuur en het leren van incidenten, is er onzekerheid over de juridische erkenning en implementatie ervan binnen nationale rechtsstelsels. Dit vergroot de onvoorzienbaarheid van strafrechtelijke vervolging en belemmert de juridische bescherming van piloten.

Ondanks de regulerende rol van ICAO in het vaststellen van luchtvaartveiligheidsnormen via de SARPs, is de wereldwijde implementatie van deze SARPs niet consistent. Dit gebrek aan uniformiteit vergroot de juridische onzekerheid voor piloten, die daardoor moeite hebben om in te schatten wat de juridische gevolgen van hun handelingen kunnen zijn. De angst voor strafrechtelijke vervolging kan bovendien een afschrikkend effect hebben op het vrijwillig rapporteren van fouten, waardoor systematische veiligheidsverbeteringen in gevaar komen.

Dit onderzoek concludeert dat volledige juridische duidelijkheid in de luchtvaart onrealistisch is, gezien de dynamische aard van de sector en de verschillen in wetgeving en toepassing daarvan door gerechten in de jurisdicties die zijn onderzocht in deze studie. Deze verschillen vereist normatieve flexibiliteit, niet in de zin van vaagheid, maar als noodzakelijke ruimte om regelgeving af te stemmen op operationele realiteiten en internationale variatie. Tegelijkertijd moet worden gestreefd naar een evenwicht tussen rechtszekerheid, transparantie en veiligheid, zodat de strafrechtelijke aansprakelijkheid van piloten voorspelbaar en rechtvaardig blijft. Om dit te realiseren, moeten alle belanghebbenden—ICAO, Staten, luchtvaartorganisaties, piloten en andere belanghebbenden—nauw samenwerken.

De aanbevelingen in dit proefschrift richten zich op het bereiken van een evenwichtige en geharmoniseerde benadering van de strafrechtelijke aansprakelijkheid van piloten, met als doel de spanningen tussen veiligheid, rechtszekerheid en transparantie te verkleinen. Hoewel het veiligheidsparadigma in de luchtvaart leidend moet zijn, vereist dit paradigma duidelijke regelgeving en een juridisch kader dat helder onderscheid maakt tussen gedragingen die al dan niet kunnen leiden tot strafrechtelijke aansprakelijkheid. Door de formulering van gestandaardiseerde definities en de verhoging van normatieve duidelijkheid, kunnen zowel *Just Culture* als rechtszekerheid worden versterkt. Deze opheldering stelt piloten in staat hun verantwoordelijkheden en aansprakelijkheden beter te begrijpen en biedt aanklager en rechters een duidelijker kader voor strafrechtelijke beoordeling. ICAO moet streven naar de harmonisatie van deze definities, zodat wereldwijde consistentie wordt gewaarborgd.

ICAO speelt een cruciale rol in het bevorderen van internationale samenwerking, door platforms te bieden voor dialoog tussen lidstaten, het delen van *best practices* en het verbeteren van de uniforme implementatie van SARPs. ICAO kan tevens bijdragen aan de discussie over strafrechtelijke aansprakelijkheid van piloten via *task forces* en werkgroepen, waardoor Staten gezamenlijk aan oplossingen kunnen werken. Bovendien zou ICAO moeten streven naar het standaardiseren van de definities van luchtvaartdelicten en verschillende niveaus van verwijtbaarheid, vergelijkbaar met de aanpak in de *Manual on the Legal Aspects of Unruly Passengers*. Daarnaast moet ICAO de technische bijstandsprogramma's uitbreiden om Staten te ondersteunen bij de effectieve implementatie van SARPs.

Staten hebben de verantwoordelijkheid om de transparantie van hun juridische kaders met betrekking tot pilootaansprakelijkheid te verbeteren. Deze verantwoordelijkheid omvat de effectieve implementatie van SARPs, het uitgeven van *State Safety Programs* om belanghebbenden duidelijke richtlijnen te bieden en het versterken van de samenwerking tussen ongevalsonderzoeksinstanties en justitiële autoriteiten.

Staten moeten zich ervan bewust zijn dat vervolging primair gericht moet zijn op veiligheid en niet uitsluitend op strafrechtelijke bestraffing van piloten. Deze benadering vereist een evenwichtige benadering, die rekening houdt met de bijzondere context van de luchtvaart en de vrijwillige rapportage onder *Just Culture* stimuleert zonder vrees voor vervolging die schadelijk is voor de verbetering van de veiligheid van de luchtvaart. Daarnaast moeten Staten actief samenwerken met ICAO en deelnemen aan internationale discussies om consistentie in regelgeving te bevorderen.

Organisaties, zoals luchtvaartmaatschappijen en beroepsverenigingen, kunnen bijdragen aan het verbeteren van juridische duidelijkheid en veiligheidscultuur, door piloten beter voor te lichten over de juridische aspecten

van hun beroep. Organisaties zoals IATA en IFALPA zouden trainingen moeten faciliteren, Just Culture moeten bevorderen en empirisch onderzoek moeten uitvoeren naar collectief-subjectieve duidelijkheid vanuit het perspectief van piloten. Deze organisaties kunnen tevens hun invloed in internationale luchtvaartfora gebruiken om te pleiten voor regelgevingskaders die zowel luchtvaartveiligheid als juridische verantwoordelijkheid in balans houden.

Piloten hebben voorts zelf de verantwoordelijkheid om naleving van de bestaande luchtvaartregels te waarborgen en zich bewust te blijven van hun juridische verplichtingen. Zij zouden actief moeten deelnemen aan beroepsorganisaties, juridisch advies moeten inwinnen indien nodig en initiatieven voor grotere juridische duidelijkheid moeten ondersteunen. Deelname aan enquêtes en discussies over Just Culture kan bijdragen aan de ontwikkeling van meer praktische en eerlijke juridische kaders. Tegelijkertijd moeten piloten een *'safety first'*-mentaliteit behouden en een meldcultuur bevorderen die luchtvaartveiligheid ondersteunt zonder angst voor buitensporige vervolging.

Curriculum Vitae

Jinyoung Choi, born on 27 September 1988 in Seoul, Republic of Korea, pursued her early education in her home country before relocating to the Netherlands to specialise in air and space law. Her academic journey spans multiple institutions, including Korea Aerospace University, *Hogeschool Leiden*, *Rijksuniversiteit Groningen*, Sejong Cyber University and Leiden University. She holds an LL.B. from Korea Aerospace University, Republic of Korea, an Advanced LL.M. in Air and Space Law from the International Institute of Air and Space Law at Leiden University, The Netherlands, and is expected to obtain a BEng in Industrial Safety in 2025. Additionally, she is an alumna of various space law and policy programs in Europe including the Space Studies Programme at the International Space University, having received funding from the *Stichting* Space Professionals Foundation to complete the programme.

In March 2017, she began a PhD project as an External Candidate at the International Institute of Air and Space Law at Leiden University. During her PhD project, Jinyoung obtained her Basic Teaching Qualification (BKO, *Basis Kwalificatie Onderwijs*) and Basic Qualification Language Proficiency English (BKE, *Basiskwalificatie Taalvaardigheid Engels*) required for teaching staff of Leiden University. She also spoke about her research at various occasions including at 36th Annual Conference and 14th Liability Seminar of European Air Law Association, the 27th Air Transport Research Society World Conference, and the 1ste *Toogdag Faculteit der Rechtgeleerdheid* of Leiden University.

Next to her studies, Jinyoung has gained professional experience through roles at the ICAO COSCAP-SEA in Thailand, the Ministry of Land, Infrastructure and Transport of the Republic of Korea, the Ministry of Infrastructure and Water Management of the Netherlands (formerly, the Ministry of Infrastructure and Environment), and Clyde & Co in Hong Kong.

In 2018, she joined the Royal Netherlands Aerospace Centre (NLR) as a safety consultant in the Department of Aerospace Operations Safety and Human Performance. That same year, she co-hosted the International Air Law Moot Court. Since 2019, she has been serving as a lecturer and since 2023 also as an academic coordinator at the International Institute of Air and Space Law of Leiden University.

Currently, Jinyoung holds positions at the Royal NLR and Leiden University while also serving as the lead researcher at the Hague Court of Arbitration for Aviation, a role she assumed in 2022.

Beyond her work in law and safety, Jinyoung has also been active as a Dutch-to-Korean book translator, with approximately 50 translated publications to date.

In the range of books published by the Meijers Research Institute and Graduate School of Leiden Law School, Leiden University, the following titles were published in 2024 and 2025

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