AVIATION ACCIDENT LAW

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I. Introduction

For over a hundred years now, international aviation law has developed due to the conflicting needs of both providing airlines with financial stability while at the same time guaranteeing that passengers will receive a fair level of compensation. In the early days of the aviation industry (when the risk of flying was at an all-time high), the primary mechanism protecting international airlines was the Warsaw Convention, which limited airlines' liability if injured passengers proved negligence. Although this "equitable balance" provided for the continued growth of international airlines then (and for many years to come), over the years safety improvements have been made to the aviation industry (as well as increased public demand to hold airline companies accountable), which resulted in the Warsaw System being criticized for being more than inadequate by the end of the 20th Century. As a result, the Warsaw System underwent significant restructuring and was replaced by the Montreal Convention 1999. The Montreal Convention 1999 is now the current standard under which all international aviation law is based and provides a consumer-centric system that allows for accident victims to be properly compensated quickly and fairly. The most significant improvement made under the Montreal Convention 1999 is a dual system of liability (or how damages are calculated) which enables a significantly greater assurance that the injured party will receive monetary compensation for their injuries. Legal frameworks are facing challenges from advancements in flight technology. As an example, the increased use of automated technologies, as well as the use of AI, has created issues in establishing cause-and-effect relationships. As pilots use more automated systems (sometimes referred to as black box technology) it becomes more difficult to establish a cause or fact in the case of an accident occurring from the pilot's actions. Adding to this global trend, criminally prosecuting pilots for "honest errors" has posed a threat to the concept that "Just Culture" is critical to the voluntary reporting of accidents in aviation. Therefore, aviation law must find a way to balance the needs of the global aviation community to find justice in relation to ensuring a safe air travel system globally.

II. Historical Background

The first decade of the 20th century marked the development of commercial aviation and was characterized by both the entry into commercial aviation and the technical uncertainty associated with new technologies and their being offered for commercial use. Internationally, governments saw that a common legal framework was a necessity for creating a reliable risk profile for carriers to continue to develop. The result of this was the Warsaw Convention Concerning the Unification of Certain Rules Relating to International Carriage by Air from 1929. The Warsaw Convention presented an air carrier liability regime that assumed fault in the event of a passenger injury or death, but equally important, confined a carrier's liability to a limited amount. This "equitable balance" was intended to allow the civil aviation industry to continue to expand without the threat of a single event that would bankrupt an airline.[1].

Under the Warsaw Convention, the most that a passenger could receive in compensation for a personal injury or death was 125'000 Poincaré gold francs, roughly equivalent to (at that time) US$8300 Although the Warsaw Convention allowed operators and insurers to obtain the predictability they required for their day-to-day operations, public outcry eventually arose regarding the lack of compensation available due to the continuous improvement of the safety of flying and increasing societal expectations of the value of human life. Over the next several decades (to the present time), there have been many protocols and agreements designed to update the original Warsaw Convention, and collectively these have been commonly referred to as the "Warsaw System".

The problems with the Warsaw limitations were unacceptable by the end of the 20th century and began to be challenged in North America through various means, including almost all courts and jurisdictions in the United States, with a push to completely tear down the treaty's established regime. As a result of this mounting judicial and legislative pressure, several private initiatives, including the IATA International Agreement on Interline Liability, also known as the IATA Intercarrier Agreement (IIA) and the IATA Implementing Measures for the Intercarrier Agreement (MIA), were put into place in the mid-1990s, where airlines voluntarily assumed liability limits for deceased or injured passengers and adopted a strict liability standard for damages in amounts up to 100'000 SDRs. These private contractual actions served as the basis for the 1999 Convention, which was adopted in 1999 and superseded the disjointed and

[1] J. C. Batra, Modernization of the Warsaw System - Montreal 1999, 65 J. AIR L. & COM. 429 (2000)

simplistic Warsaw system with one coherent and modern treaty.

III. The Montreal Convention of 1999

The Montreal Convention of 1999 represents the highest point of aviation liability law because it creates a complete and modern system for international transportation. The preamble of 1999 now explicitly acknowledges "the importance of protecting the rights of consumers when they travel internationally by air and that there is a need for fair compensation based upon the principle of restitution". 2 This change in normative philosophy is clearly seen when you consider the introduction of the 2-tier liability for passenger death and injury.

The Two-Tier Liability System

Under the 1999 Convention, which replaced the Warsaw Convention liability caps (absolute liability), there is now a two-tiered system of liability that balances both the airline's financial viability and the passenger's right to recover full compensation for their injuries.

The first tier provides for strict liability for an airline's liability for the death or bodily injury of a passenger. That is, if a passenger is killed or injured, the airline is liable to the passenger or the passenger's family (depending on whether the passenger survives) for a minimum amount of 151880 SDRs, regardless of whether or not the airline was negligent or at fault. This "virtual strict liability" provision allows an injured passenger or the passenger's family to receive some compensation for their damages without having to go through a long and costly process of litigation to determine whether the airline was at fault for the accident. Additionally, the airline may not exclude or limit its liability under this first tier of the two-tiered system even if the airline can prove that the passenger was partially or fully responsible for the accident.

The Second Tier provides for damages that exceed the first tier's limits and allows for unlimited compensatory awards against a carrier unless it can successfully defend itself under Article 21. An airline may only avoid liability if it can demonstrate that the damage was not caused by its own negligence, wrongful acts or omissions, or if it was the sole fault of a third party's negligent act or omission. As a result of this shift in the burden of proof from the plaintiff to the defendant airline, in an instance of an aviation disaster where there are multiple causes of death, the airline has a very difficult time proving any of its defences due to the "proof of a

negative" requirement to escape unlimited liability. [2]

The initial selection of Special Drawing Rights (SDR) to be the unit of account for 1999 was a strategic decision in order to protect the liability limits from the fluctuation of any individual National Currency. In summary, the SDR is a fictitious combination of currencies maintained as a unit of value by the International Monetary Fund (IMF), which is used as a global economic standard for valuing goods and services. Article 24 of 1999 also contains a "built-in" process for adjusting the limits for inflation by requiring the IMF to conduct a review every five years to determine the inflation rate for the purpose of adjusting the limits on the maximum liabilities based on the average of the Consumer Price Indices of each National Currency that comprises the SDR.

The revised agreement (effective 28 December 2024) reflects 17.9% inflation as revised to reflect 17.9% inflation. These regular revisions to the agreement provide assurance that the protection provided to passengers will not diminish over time, and maintain the agreement's goal of creating a just compensation system. The amended agreements may require carriers to regularly update their Conditions of Carriage and Tariffs to remain compliant with international and domestic law.

IV. Judicial interpretation regarding Article 17

The occurrence of an "accident" is what triggers liability pursuant to Article 17(1).6 As there is no express definition of the word "accident" in the Montreal Convention, the world's courts have developed a benchmark to differentiate between an appropriate tortious event for purposes of compensation, as well as a non-tortious personal injury that occurred during a flight.

In the 1985 case of Air France v. Saks, the United States Supreme Court determined that there are two aspects to how an accident occurs under the Convention on the International Sale of Goods (CISG). First, an accident is defined as "an unexpected or undesired event or incident that happens outside of a passenger's own body". In addition, an accident can only occur due to some type of external cause. Therefore, the accident must result from some external factors that cause an injury to a passenger. When a passenger suffers an injury due to the failure of the aircraft to properly maintain its cabin pressure during descent, and the operation of the aircraft's

[2] Mike Danko, Compensating The Families Of Air France Flight 447, Law360 June 5, 2009

systems is not negligent or incorrect, then the injury would not be considered an accident.

V. Neglect and Non-Aeronautical Hazards

The Saks definition has been modified and expanded through subsequent litigation. In Olympic Airways v. Husain (2004), the United States Supreme Court found that an accident could include multiple events, including "neglect" by flight crew members.20 This case involved a passenger with severe asthma who died because the flight attendant would not move him from the smoking section of the airplane. The Court held that the flight attendant's refusal to render assistance resulted in a causal connection with the accident because the refusal was an unusual and unanticipated departure from the department's normal operating procedures.[3]

In the past few years, there has been a significant expansion of how courts view what constitutes an "accident" as a result of the European Union's (EU) Court of Justice (CJEU) issuing an extended definition.

The CJEU ruling on 19 March 2019 (the "2019 Ruling") ruled that where an object used in the service of passengers leads to bodily injury to a passenger on an aircraft, such injury occurs in an accident even if there is no condition that is ordinarily associated with an aviation accident.

In this action, a child suffered a burn from being scalded by hot coffee that was spilt from a tray by a passenger.

As part of its reasoning for reaching its decision, the CJEU held that if a passenger has to establish/aeronautical cause for bodily injury suffered by reason of an alleged accident, then strict liability would not apply, and there would be no value in having a strict liability provision in respect of aircraft, as no guarantee would ever exist that such a provision would ever apply.

To the extent that the CJEU's ruling expands the definition of "accidents" to encompass all forms of bodily injury to a passenger as a result of an alleged accident, this ruling implies (and illustrates) that the courts are beginning to move toward an "aircraft interior premises liability" model regarding the liability of airlines for virtually every accident to a passenger while flying on an aircraft.

[3] Kelsey Roberts, Expecting the Unexpected: Moore v. British Airways and Defining an Accident Under the Montreal Convention, U. Chi. L. Rev. Online July 19, 2023

The CJEU has addressed both the temporal and causal limits of an accident. In JR v Austrian Airlines, the CJEU looked at whether poor first-aid care that was given on board following a prior injury was a separate occurrence or part of the same accident. The CJEU determined that when a series of interrelated events happens in a continuous stream, the events will together constitute a single accident. The single-accident principle will affect how a passenger can pursue their claim with respect to the two-year limitation period found in the 1999 Article 35. By including the subsequent bad treatment of an injury as part of the original accident, the CJEU has ruled that all claims arising from it will be governed entirely by the Convention's regime of strict liability and a single time limitation, as opposed to existing under the disparate systems of national negligence law.

In spite of evolvement of the definition of "accident," the range of available damages recoverable has only consistently encompassed the categories of "death or bodily injury." This has also been an essential area of legal dispute, especially when it comes to whether a solely psychological/mental injury can be compensated.[4]

VI. The Historically Consistent Physicality Requirement That Prevails

There is a worldwide consensus, primarily represented by the U.S. Supreme Court decision in Eastern Airlines v. Floyd (1991), in holding that there is no compensation for solely psychological injuries (e.g., PTSD, anxiety, and emotional distress) claimed under Article 17 where there is no physical injury suffered.20 The court determined that the term "bodily" does not include the mind, nor was it intended to cover mental injury by those who drafted the Warsaw Convention.

The principle banning recovery for anguish has been consistently enforced, including by denying recovery where mental anguish exhibited itself in physical manifestations (such as hives or weight loss) by designating them as psychosomatic rather than bodily injuries.

Emerging jurisprudence has developed concerning the biological characteristics of mental trauma. As seen in King v. Bristow Helicopters (2002), the UK House of Lords considered whether a medically diagnosed psychiatric disorder constitutes a personal injury (i.e., does it present a bodily injury) if there is a modification of the chemical or structural properties of the

[4] SB Law & Mediation, Can Psychological Injures Be Included in the Concept of Bodily Injuries Under the Montreal Convention Dec. 4, 2023

brain due to that illness?19 The biological injury argument is receiving increasing academic endorsement; however, the prevailing opinion among U.S. courts is that only injuries that are proximately caused by a physical impact or by some other way as a result of an accident will be regarded as recoverable damages related to mental injury.

In contrast to earlier legal definitions of injuries as strictly bodily, courts in the EU are starting to move towards a less stringent definition. In BT v Laudamotion, the CJEU held that if there has been any type of accident, whether there has been an associated physical injury or psychological injury with clinical consequences, it will be considered a bodily injury and compensable. Courts noted that there is now a marked difference between how the CJEU and other courts around the world are interpreting Article 17; as such, there is potential for "forum shopping" by plaintiffs looking for jurisdictions that recognise, as the CJEU does, that injuries include more than just bodily injury.

The Fifth Jurisdiction Innovation and Jurisdictional Dynamics

The forum that is selected for an aviation accident case is usually of vital importance since it determines which country's law will be applicable to determine damages, as well as the procedural rules that apply.9 The 1999 Convention expands the four jurisdictions available pursuant to the Warsaw Convention to five possible places to bring suit.

The Four Traditional Jurisdictions and the American "Fifth Jurisdiction"

Pursuant to Article 33(1) of the Convention, a plaintiff can bring a lawsuit in one of the following jurisdictions or locations of a State

1. The domicile of the carrier

2. The principal place of business of the carrier

3. The established place of business of the carrier through which the contract was made (or place of ticketing), and

4. The passenger's destination.

One of the more significant achievements at the 1999 Conference for U.S. negotiators was the inclusion of what is referred to as the "Fifth Jurisdiction" as provided in Article 33(2)9. This

clause allows passengers to sue in their country of "principal and permanent residence" should the carrier offer services and have a physical presence in that country.9 With this addition, the intention was to ensure that U.S. citizens who die or suffer an injury while abroad on a foreign carrier can seek recourse in a U.S. court and not be forced into foreign judicial systems with less favourable damage awards.29[5]

A strict interpretation exists for what constitutes a "physical presence" in each jurisdiction. A carrier must operate service directly using its own aircraft or through code-sharing agreements and must conduct business from a location owned or leased by itself or a partner carrier.1 In Akulinina v. iFly, the court dismissed the plaintiff's case under the fifth jurisdiction because the carrier did not meet the formal operational requirements in the plaintiff's home jurisdiction.

Even if a court has subject-matter jurisdiction under Article 33, a court can still refuse to decide on a case should it determine that there is a more convenient Forum for moving the case. The Forum Non Conveniens (FNC) describes a court's ability to dismiss an action when it finds that there is a significantly more appropriate Forum available for the benefit of both parties and the witnesses. While some early cases like United Airlines v. Hosaka argued that the jurisdictional options outlined in the Convention are mandatory and therefore trump FNC, the general modern view is that Article 33(4) was created to provide a governing reference to the court that is providing jurisdiction, thus providing a basis for application of FNC in jurisdictions with Common Law systems.

In addition, U.S. courts must also satisfy the "Personal Jurisdiction" constitutional requirement. Foreign airlines are required to establish "minimum contacts" with the forum U.S. state in which the action was filed. Recent Supreme Court rulings concerning "minimum contacts" have created a requirement that there be a direct causal relationship between the activity of the defendant in the forum that gives rise to the plaintiff's negligence (or action). For example, the "wandering American" who purchases a ticket in Europe for an intra-Asia flight on a foreign airline meets the MC99 legal requirements and therefore, under the terms of the MC99, is entitled to file their claims in a U.S. court; however, based on the constitutional parameters of minimum contacts established by the U.S. Supreme Court, that same U.S. citizen may be barred from bringing the suit in a U.S. court.

[5] Zoe Brummer, Can Psychological Injuries Be Included in the Concept of Bodily Injury Under the Montreal Convention . 371 2024

The liability between the carrier and the aviation product liability is often linked. The Montreal Convention governs the liability of carriers solely. Many aviation disasters occur due to mechanical failures or defects in design rather than by pilot error or the negligent operation of a carrier. As a result, litigation in these cases will be aimed at manufacturers of aviation products (e.g., Boeing or Airbus). The manufacturers do not have the benefit of the liability limits imposed by the treaty, nor are they subjects of a presumption of fault under this treaty.

The 1999 Controversy between 1999 and domestic tort law has to do with proof requirements. Under the 1999, an airline is presumed to be negligent for damages over the first tier. On the other hand, in a product liability lawsuit against a manufacturer, the plaintiff must demonstrate not just that the product was defective, but also that the defect was the cause of the injury.

The Boeing 737 MAX crashes of Lion Air and Ethiopian Airlines exemplify how product liability law in aviation is becoming increasingly complex in the modern era. Many of the lawsuits resulted from issues relating to the design and performance of MCAS, or the "manoeuvring characteristics augmentation system", which was implemented to help counterbalance the aerodynamic and other issues related to the 737 MAX. On the design side, the plaintiffs argued that using only one Angle of Attack (AOA) sensor created a single point of failure and therefore was defective under Restatement (Third) of Torts, as a reasonable alternative design to eliminate these foreseeable risks (e.g., use of two AOA sensors, better training for pilots) would have been available.

Furthermore, Boeing was also named in several lawsuits based on claims that it failed to warn the airlines or provide the operators with any information about MCAS in the flight manuals for their pilots. It is alleged that Boeing's failure to do so was motivated by its desire not to impose an extra "differences training" requirement on airlines' pilots and therefore allow the 737 MAX to compete more favourably with the Airbus. Overall, the courts demonstrate a systems approach to liability, in which safety is viewed as an emergent property of the interactions of the pilot, the machine and the environmental conditions within which an aircraft is operated rather than being attributed to one failed component (human or machine) at a time.

VII. Federal Preemption and Aircraft Manufacturing

One of the most contentious aspects of U.S. law surrounding aviation stems from whether or not federal safety regulations preempt claims under state law for product liability based on

defects in design. Product manufacturers typically assert that the Federal Aviation Act (FAA) preempts all claims of this type, thereby entirely preempting any state-level design defect claims. For example, in the landmark case Abdullah v. American Airlines, the Court in that case held that the Federal Aviation Act established the standard of care for flight operations as a matter of federal law. However, the courts have also addressed more recent cases, both federal and state in nature, that have produced several decisions establishing that those claims are not preempted; the courts have reasoned that since the FAA only establishes "minimum safety standards," states have a traditional role in providing compensation to their citizens for injuries caused by a product that has design defects.

The Convention on International Civil Aviation

An important rule in the area of international aviation is that safety investigations shall remain separate from the criminal justice system. Article 23 provides that a convening authority shall investigate any accident to an aircraft in order to prevent recurrence of similar accidents and incidents, and not for the purpose of assigning blame or liability.[6]

VIII. The Global Criminalization of Aviation Accidents: The Chilling Effect

In contrast to this internationally recognized requirement, the trend globally is to criminally charge individuals (e.g., pilots, mechanics, air traffic controllers) in connection with accidents. Prosecutors across many countries are launching criminal investigations into aviation accidents shortly after the occurrence (e.g., involuntary manslaughter, endangerment). In France, for example, a death stemming from an aviation accident automatically triggers a criminal investigation; therefore, judicial authorities typically take a more active role than investigators in controlling both the accident site and any related evidence.

The aviation industry believes that the potential for criminally prosecuting an individual creates a fear-driven culture that inhibits voluntary disclosure of safety information. Since about 75% of aviation accidents are caused by error, it is only through the open acknowledgement of individual errors that we can make improvements in aviation safety. The Flight Safety Foundation warns that creating a criminal liability for "honest mistakes" on the part of professionally trained people will ultimately put the travelling public at risk by obstructing the

[6] Joshua C. Moscow, Note, *Independence and Liability in Civil Aviation Accident Investigations through Annex 13 and the Montreal Convention*, . 837 2022

flow of safety information.

IX. Brazil's Recent Examples with Criminality Operations and the Relationship to Safety

Brazil's experience provides recent examples of the continuing struggle between criminal accountability and the need for a safety culture. Following significant aviation accidents (e.g., the Legacy 600 flight collision in 2006), Brazilian courts have attempted to pursue criminal prosecutions for individuals flying, but they are still prosecuting pilots and air traffic controllers despite Brazilian law prohibiting the use of technical investigation related to prosecution.

In the European Union and other countries, the concept of Just Culture has gained significant support. Just Culture separates human error (in which an air traffic controller or pilot has made an honest mistake) from a reckless act or willful act. The Just Culture framework will allow for protection from prosecution for honest errors, thus allowing increased reporting while simultaneously maintaining criminal prosecution for reckless acts or willful acts. The intent of "Just Culture" is to allow for the continued independent function of the courts and for the courts to achieve justice without creating a system that destroys the worldwide safety infrastructure that is based on transparency.

X. AI as an Example of Moving Beyond Negligence

Whereas AI has changed traditional notions of what constitutes a responsible actor to include "inscrutable and unintuitive code" that occupies the space between a human decision maker and the chain of causation resulting from that decision under the premise of the "reasonable person" standard that is used in traditional negligence cases, it may potentially change how the principles of negligence would apply if an airplane operator relied upon an erroneous recommendation made by an AI system. In medical malpractice cases, courts hold a human clinician responsible for their final determination relative to their patient's health care needs as well as any associated outcomes, even if they relied upon the AI output, which was found to be faulty. Therefore, it is conceivable that in Aviation, there would be a similar trend, and a pilot could be found responsible for both following or failing to follow an automated algorithm.

Scholars in the area of law have advocated for shared liability among manufacturers, software developers, and human operators. Some propose using the European Union Proposal for an AI

Liability Directive, which allows for non-fault liability of high-risk failures as well as requiring fair compensation for victims of an identified computer error, even if it is impossible to determine what caused the fault.

XI. Saving Air Safety and Privacy- The Unmanned Aerial Vehicle (UAV) Regulatory Framework Crisis

Due to the rapid increase in Drone use, there has been an increased emphasis on regulation for safety, privacy, and airspace management. The Federal Aviation Administration (FAA) currently has a major jurisdictional conflict with each state in the United States over jurisdiction and use of the "low altitude" airspace (500 feet). The FAA believes they control the entire airspace within the United States, while the states argue they have the right to control and regulate their land and adjacent airspace with respect to drone use due to privacy and public safety.

In addition, the autonomous nature of drones raises difficulties in defining the term "pilot". European Union regulations define "automated" and "autonomous" drones; however, no regulations exist that can define "meaningful human intervention." From a liability perspective, the pilot/operator of a drone may be subject to state "trespass" and "invasion of privacy" claims that would not apply to pilots of traditional commercial aircraft. The MH17 incident, wherein a USA-based Drone was used to collect information and monitor ground resources outside of the intended purpose of collecting information and monitoring, raised questions about whether the use of Drones may amount to a violation of a person's rights to privacy under the International Human Rights Directive.

XII. Conclusion: Restitution Versus Global Safety

The development of the law concerning aviation accidents is characterised by ongoing efforts to establish an "equitable balance" between the economic interests of the aviation industry and the legal rights of passengers to receive compensation for their loss or injury. While the 1999 Montreal Convention is largely viewed as successfully adopting a unified, modern, and consistent framework (especially through its two-tier liability scheme and periodic updates to the SDR), the definition of "accident" for legal purposes and the compensability of mental injury remain contentious issues, with widely varying results in different jurisdictions.

In addressing both the future of international/aviation law and the interface between technological innovation and criminal law, the future regulation of flight operations will no longer be focused solely on "pilot error." Instead, as technology becomes increasingly autonomous, regulatory oversight will be focused on a more comprehensive or "systems-based" perspective that includes consideration of the complexities of software systems and manufacturer responsibility for product design/assembly. In addition, insofar as the criminal law is concerned, states should avoid a trend of criminalizing honest mistakes; the pursuit of criminal responsibility should not dilute the culture of transparent reporting that has been the fundamental basis for ensuring safety in the aviation industry throughout its history. The transition from the Warsaw Convention regime to the Montreal Convention framework reflects the adaptability and resilience of the law; however, the next century of aviation will demand an even more nuanced and collaborative approach to the legal regime that governs both the skies and the safety of passengers.