Liability of Air Navigation Service Providers: Towards an International Solution

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The rapid growth of air traffic is inevitably leading to congested skies, flight delays, and even more alarmingly, a decrease in the overall safety of aerial navigation. For this reason, the provision of air navigation services is undergoing constant modernization, necessitating a solid legal framework. This paper examines the adequacy of the current legal framework, characterised by predominantly national regulation, with respect to traditional and cross-border arrangements for the provision of air navigation services. Analysis shows that although in traditional scenarios national regulation provides a satisfactory legal framework, this is not the case with respect to the multitude of existing and envisaged cross-border scenarios. The fundamental restructuring of European airspace envisaged in the Single European Sky legislative package raises novel liability issues that highlight the desirability of implementing a solution on the international level.

1. INTRODUCTION

In the broad sense of the word, the term 'air navigation' is used to refer generally to the conduct of flights.[2] In the very early days of aviation, most flights were operated under visual flight rules (VFR), which require appropriate meteorological conditions[3] to be met in order for the pilot to safely fly the aircraft, avoiding obstacles in the air and on the ground. For these reasons, VFR flights were not well suited for international air transport, which is why the advent of navigational aids that allowed pilots to fly aircraft under instrument flight rules (IFR) was a true breakthrough for civil aviation. The introduction of distance measuring equipment (DME), non-directional beacons (NDB), very-high frequency omnidirectional range beacons (VOR) and satellite navigation systems, such as the global positioning system (GPS), made it possible to operate flights at any time of day, and guidance from a control tower or centre became a prerequisite for the attainment of safety and performance levels[4] the civil aviation industry can proudly boast with today.

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[2] Shawcross and Beaumont Air Law. General Editor David McClean. Vol. 1, Issue 117, at VI-1 (2009).

[3] These primarily include minimum visibility, distance from clouds and altitude, as specified in Annex 2 to the Chicago Convention: Rules of the Air, ICAO, 10th Ed., July 2005 (2005).

[4] I.H.Ph. Diederiks-Verschoor, An Introduction to Air Law, 197-198, 8th ed. (2006).

Technological innovations in the field of air navigation naturally lead to regulatory advancements. For example, the ICAO Review of the General Concept of Separation Panel concluded in 1988 that the reduction of vertical separation minima between flight level 290 and flight level 410[5] would boost the efficiency of airspace use, allowing airlines to increase capacity and offer better scheduling.[6] While such consumer benefits are undoubtedly significant, the exponential increase in the number aircraft flying at the same time within a limited space highlights both the scarcity of airspace as a resource and the challenges air navigation service providers (ANSP) face in maintaining a safe, orderly, and expeditious flow of air traffic.[7] Current forecasts indicate long term growth in air traffic, with the potential of causing delays in 20% of flights by 2020 unless initiatives to modernize the current system are adopted.[8] This tremendous and growing workload invariably leads to errors in aircraft guidance that may result in accidents, entailing important questions of ANSP liability.

2. CURRENT LEGAL REGIME OF ANSP LIABILITY

2.1. Consequences of the lack of an international convention

With the principal rule of international air law concerning the responsibility of air navigation service providers contained in Article 28 of the Chicago Convention,[9] and due to the lack of an international convention on the liability of air navigation service providers, one might presume that there is not much to be said on the matter. However, a more detailed analysis

[5] 29000 feet and 41000 feet above mean sea level, respectively.

[6] See, e.g. Manual on Implementation of a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive. ICAO Doc. 9574 AN/934, 2nd. Ed. (2002).

[7] This is the principal task of the air traffic control service, one of the most important services rendered by ANSPs, thus also predominantly the subject of various ANSP liability scenarios. For sake of completeness, other services provided include the flight information service, alerting service, air traffic advisory service. ANSPs are also involved in air traffic management (ATM), which in addition to the mentioned air traffic services, comprises air traffic flow management and air space management. These last two functions focus on increasing airspace capacity. For an overview of the system of air navigation services, consult: W. Schwenk, R. Schwenk, *Aspects of International Co-operation in Air Traffic Management, in* G.C.M. Reijnen (Ed.), Utrecht Studies in Air and Space Law, Vol. 17, at 2-3 (1998).

[8] I. Middleton, Single European Sky vs. Next Gen (US) From a Regulatory Perspective, Presentation delivered at the Worldwide Airport Law Conference: Airports In a Changing Aviation World – How to Regulate?, April 25-27, 2012, at 5 (2012).

[9] This article imposes an obligation on states to provide in their respective territories "air navigation facilities to facilitate international air navigation". Convention on International Civil Aviation, 15 UNTS 295, ICAO Doc. 7300, art. 28 (1944).

reveals a multitude of outstanding issues with varying degrees of practical significance, but all of which are rather topical from a theoretical perspective.

Notwithstanding the loosely formulated obligation set out in Article 28[10], states appear to consider ANS to be their responsibility.[11] However, as the majority of air navigation service providers are public entities, scenarios in which states may escape liability for damage caused as a result of ANSP errors cannot be discarded for reasons discussed below.[12] This is in no small part attributable to the lack of legally binding liability rules on the international level,[13] as it has given national legislators discretion in the establishment of appropriate liability regimes, which may be undesirable for a number of factors.

The core legal principle of state equality (*par in parem non habet imperium*) suggests that state courts will not assume jurisdiction over another state or its representatives.[14] This 'sovereign immunity' is restricted to claims arising out of acts of public authority (*acta jure imperii*),[15] which include the provision of air traffic services.[16] Hence, in these cases, save for instances where states waive their immunity on a voluntary basis, claimants often have to address their home state to support their claim, effectively turning a private litigation into a

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[10] "Each contracting State undertakes, *as far as it may find practical*". Convention on International Civil Aviation, 15 UNTS 295, ICAO Doc. 7300, art. 28 (1944).

[11] *See, e.g.* J. Huner, Responsibility of States for the Provision of Air Traffic Control Service: the EUROCONTROL experiment, LLM Thesis, Institute of Air and Space Law, McGill University 29 (1977); F. Schubert, La responsabilité des agences du contrôle de la circulation aérienne 9 (1994).

[12] As R. Abeyratne points out, even autonomous (corporatised or privatised) ANSPs, such as NATS, NavCanada, the Airways Corporation of New Zealand and Air Services Australia invariably remain under the supervision of respective states, which still draft relevant national legislation; continue to hold responsibility for certification and designation of service providers, as the latter still provide a public function in managing airspace. R. Abeyratne, Air Navigation Law 45 (2012). Similarly, in the US, the FAA may contract with a private firm for the provision of air navigation services, however, the ultimate responsibility for oversight as regards the compliance of the private firm with federal safety requirements rests with the FAA. P.S. Dempsey, *Governmental Liability for Privatized Air Traffic Services*, XXVIII Annals of Air & Space Law 118 (2003).

[13] In 1983 Argentina submitted a Preliminary Draft international Convention on the Liability of Air Traffic Control Agencies (Draft Convention) to the 25th Session of the ICAO Legal Committee, however to this day it has not been adopted. The Draft Convention had a very broad scope of application, endorsed the state ultimate liability doctrine (further discussed below), established limited fault-based liability of the ANSP, and subjected claims to the law and courts of the state in which the ANSP has its office. For a more detailed discussion *see* N.A. van Antwerpen, Cross-Border Provision of Air Navigation Services With Specific Reference to Europe: Safeguarding Transparent Lines of Responsibility and Liability, PhD thesis, Leiden University 176-178 (2007).

[14] I. Brownlie, Principles of Public International Law 325 (2008). *See also* S. Knuchel, *State Immunity and the Promise of Jus Cogens*, 9/2 Northwestern Journal of International Human Rights 150 (2011).

[15] M.N. Shaw, International Law, 701 (2008).

[16] M. Chatzipanagiotis, *Liability Aspects of Air Traffic Services Provision*, XXXII/4-5 Air & Space Law 338 (2007).

matter of international relations[17] where politics play a greater role than law in dispute settlement.

The mere potential of states invoking sovereign immunity, inconsistency of state practice and divergent views on the relevant customary or general international law[18] seem to emphasise the urgency of finding a solution on the international level that would better protect the interests of individual claimants in ANSP liability cases. However, this is not of great practical significance, as in practice states do not resort to sovereign immunity for damages caused by their ANSPs due to the moral considerations involved when tragic accidents such as the 2002 Überlingen mid-air collision occur.[19] In addition to this *de facto* waiver of state immunity, several European states,[20] have waived their liability *de jure* under the 1972 European Convention on State Immunity,[21] and the 2004 UN Convention on Jurisdictional Immunities of States and Their Property,[22] which aims to achieve the same result on the international level.[23] Until such international legal instrument enters into force, as far as legal regulation of state immunity is concerned, it seems that on a global level interests of claimants in an industry as international in character and scope as civil aviation are insufficiently protected.

Another issue here concerns the nature of national legislation. Liability of air navigation service providers is covered by general tort law,[24] rather than by dedicated legislation that would

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[17] A. Kost, Responsibility and Liability for Air Navigation Services, LLM Thesis in Air & Space Law, Leiden University, 37 (2004).

[18] I. Brownlie, Principles of Public International Law 330 (2008). On the different views regarding the nature of the rules on state immunity in public international law *see also* L.M. Caplan, State Immunity, *Human Rights, and Jus Cogens: A Critique of the Normative Hierarchy Theory*, 97/4 American Journal of International Law 744 (2003), S. Knuchel, *State Immunity and the Promise of Jus Cogens*, 9/2 Northwestern Journal of International Human Rights 154-155 (2011).

[19] F. Schubert, *The Liability of Air Traffic Control Agencies: A Case Study*, Presentation delivered at Leiden University on May 02, 2012, at 3 (2012). *See also* F. Schubert, *The Liability of Air Navigation Services Providers: Some Lessons from the Single European Sky*, *in* D. Calleja Crespo, P. Mendes de Leon, *Achieving the Single European Sky: Goals and Challenges*, Aviation Law and Policy Series, Vol. 8, at 53 (2011).

[20] Namely, Austria, Belgium, Cyprus, Germany, Luxembourg, the Netherlands, Switzerland and the United Kingdom.

[21] European Convention on State Immunity, May 16, 1972, European Treaty Series No. 74, 11 ILM. 470 (1972).

[22] United Nations Convention on Jurisdictional Immunities of States and Their Property, December 02, 2004, General Assembly Resolution 59/38, Annex, Official Records of the General Assembly, Fifty-ninth Session, Supplement No. 49 (A/59/49).

[23] The Convention has so far been ratified by 13 states and will enter into force upon 30 ratifications. (http://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=III-13&chapter=3&lang=en), last visited (07-05-2012).

[24] M. Chatzipanagiotis, *Liability Aspects of Air Traffic Services Provision*, XXXII/4-5 Air & Space Law 327 (2007). On the liability of corporatised agencies see also F. Schubert, *The Liability of Air Traffic Control Agencies: A Case Study*, Presentation delivered at Leiden University on May 02, 2012, at 18-19 (2012), P.S. Dempsey et al.,

take into account the unique nature of risks[25] involved in the provision of air navigation services. As a result, 'just culture', aimed at increasing the safety of aerial navigation through the promotion of error reporting by air traffic control officers,[26] and other concepts tailored to the specific characteristics of the provision of air navigation services are unfortunately not introduced into law, preserving legal uncertainty as regards the judicial interpretation and application of general contract and tort law in ANSP liability cases. The emergence of proposals for a European aviation court that would be based on a just culture, be composed of experts in the specific field and would ensure common standards in the adjudication of relevant cases[27] clearly underlines the problems associated with the legal instruments currently governing the regulation of ANSP liability.

In addition, there are significant differences in the nature of liability established under national legislation, differences which span both substantive and procedural law. With the exception of Switzerland, where liability of the air navigation service provider is strict, in most countries the liability in question is based on fault.[28] Of course, this has a significant impact on the legal position of claimants, as strict liability does not require the claimant to prove all the elements of negligence, required to invoke liability, a task which is particularly difficult to accomplish in complex aviation accident cases. Moreover, even in the majority of cases where the liability is fault-based, there is a degree of legal uncertainty in the imposition of the burden of proof on the global level. For example, although generally the burden of proof in civil law cases rests with the claimant,[29] in the US it may shift in cases where policy and fairness considerations

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The McGill Report on Governance of Commercialized Air Navigation Services, XXXI Annals of Air & Space Law 213-347 (2006).

[25] For a discussion of the challenges in ATC decision-making, *see, e.g.* C.W. Johnson et al., *Recognition Primed Decision Making and the Organisational Response to Accidents: Überlingen and the Challenges of Safety Improvement in European Air Traffic Management*, 47/6 Safety Science 853-872 (2009). See also P. Brooker, *Reducing mid-air collision risk in controlled airspace: Lessons from hazardous incidents,* 43/9 Safety Science 715-738 (2005).

[26] Just Culture Guidance Material for Interfacing with the Media, EUROCONTROL 11 (2008).

[27] S. Michaelides-Mateou, A. Mateou, Flying in the Face of Criminalization: the Safety Implications of Prosecuting Aviation Professionals for Accidents 149 (2010).

[28] F. Schubert, *The Liability of Air Navigation Services Providers: Some Lessons from the Single European Sky*, *in* D. Calleja Crespo, P. Mendes de Leon, *Achieving the Single European Sky: Goals and Challenges,* Aviation Law and Policy Series, Vol. 8, at 53 (2011), W. Schwenk, R. Schwenk, *Aspects of International Co-operation in Air Traffic Management, in* G.C.M. Reijnen (Ed.), Utrecht Studies in Air and Space Law, Vol. 17, at 141 (1998).

[29] J.W. Strong et al., McCormick on Evidence: Practitioner Treatise Series 412, Vol. 2, 5th Ed. (1999); *Schaffer ex rel. Schaffer v. Weast*, 546 U.S. 49 (2005).

so require.[30] Finally, the liability of air navigation service providers is generally unlimited,[31] but may also be capped, as is the case with the contractual liability of Airways Corporation of New Zealand. New Zealand's ANSP enters into contractual relationships with airspace users, who accept standard terms and conditions that form part of their contract.[32]

On a general note, the fundamental differences between legal systems of Common Law and Civil Law also do not add clarity to the regulation of ANSP liability on the global level, making it more difficult and costly for claimants to seek compensation from a service provider located outside their country of origin.[33] Furthermore, national legislation is more prone to amendment as a result of changes in political climate than international law. It is for these reasons that an international convention on the liability of air navigation service providers is highly recommendable.

2.2. Positive effects of national regulation

Considerations discussed above highlight the desirability of an international legal instrument dealing specifically with questions of ANSP liability, but do not in any way serve to suggest that national law cannot adequately address the issues at hand. On the contrary, it is precisely the practical capability of national law to regulate liability issues that is often presented

[30] *Keyes v. Sch. Dist. No. 1*, 413 U.S. 189 (1973).
[31] F. Schubert, *The Liability of Air Navigation Services Providers: Some Lessons from the Single European Sky*, *in* D. Calleja Crespo, P. Mendes de Leon, *Achieving the Single European Sky: Goals and Challenges*, Aviation Law and Policy Series, Vol. 8, at 53 (2011).
[32] Clause 10.2 of these terms and conditions establishes capped liability of the ANSP, somewhat resembling the Warsaw/Montreal system of rules on air carrier liability: for hull loss or damage the ANSP liability is limited to the direct cost of repair or replacement up to the insured value of such aircraft; for death or personal injury the liability is limited to 100000 Special Drawing Rights (SDR) per passenger; for loss or damage to passenger's baggage the liability is limited to 1000 SDR per passenger; for loss of or damage to cargo the liability cap is set at 17 SDR per kilogram of cargo. Standard Terms & Conditions for the Provision of Airways Services, Airways Corporation of New Zealand Limited 10.2 (2011).
[33] In practice some claimants have managed to use this multitude of competing jurisdictions and applicable laws to their advantage. In the 2002 Überlingen mid-air collision, for example, an action against the manufacturers of the Traffic Collision Avoidance System (TCAS) was brought in a Spanish court, which applied US law to the case (based on the domicile of the TCAS manufacturers). As a result, damages awarded greatly exceeded amounts that would have been available had the case been decided under the law of a relevant European state. S.R. Stegich, J.E. Demay, *Bashkirian Airlines Flight 2937-DHL airways Flight 611 Mid-Air Collision: A Spanish Court Applies U.S. Law to Determine Liability and Damages – A Paradigm Shift As To Forum Non Conveniens Or Much Ado About Nothing?*, Condon & Forsyth LLP Newsletter 2-4 (2010).

as one of the arguments against the need to seek a solution on the international level.[34] One of the reasons for this is that in establishing rules for the provision of air navigation services, states base their legislation on detailed provisions contained in the Annexes to the Chicago Convention.[35] As a result, not only does this lead to the adoption of harmonised rules, but the provisions of Annexes become legally binding in the sense that states can no longer deviate from observing relevant Standards and Recommended Practices,[36] as that would constitute a breach of national law.

Another positive feature of national regulation of ANSP liability issues is its capability to quickly adapt to the changing environment of international air transport. This is particularly true for Common law jurisdictions, characterised by case law that is binding on following decisions. A brief excursion into the extensive US court practice helps illustrate the complexity of real-life situations that are handled by air navigation service providers and the progressive development of the law through judicial precedents. To exemplify the point, without going into detail as regards the duties and responsibilities of the pilot-in-command and the air traffic control officer, the Federal Aviation Administration (FAA) Air Traffic Organization Policy Order establishes that separation of aircraft is the first priority of Air Traffic Control.[37] Such separation is required principally between aircraft flying under IFR,[38] all aircraft on the ground,[39] as well as between all aircraft in certain airspace categories (e.g., Class B airspace or Terminal Radar Service

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[34] F. Schubert, *The Liability of Air Navigation Services Providers: Some Lessons from the Single European Sky*, in D. Calleja Crespo, P. Mendes de Leon, *Achieving the Single European Sky: Goals and Challenges*, Aviation Law and Policy Series, Vol. 8, at 51 (2011).

[35] Entitled "Rules of the Air", Annex 2 to the Chicago Convention contains detailed provisions on VFR and IFR flights, on the interaction between pilots and air traffic controllers, rights of way in the sky etc. Equally important are rules on meteorological services rendered to pilots by ANSPs, contained in Annex 3, Standards and Recommended Practices on aeronautical charts, contained in Annex 4, provisions of Annex 6 regarding operation of aircraft that ensure safety of aerial navigation, regulations of Annex 10 concerning navigational aid such as VORs, NDBs, DME and the like. Annexes 11 and 15 are of prime importance, as they deal specifically with air navigation, and establish rules relating to the provision of air traffic services and aeronautical information services, respectively. For a summary of relevant provisions, *see* P. Mendes de Leon, Syllabus Public International and European Air Law 2011-2012, at 49-65 (2012), P. Dempsey, Public International Air Law 209-224 (2008).

[36] Pursuant to Article 38 of the Chicago Convention, such deviations are possible under certain conditions, provided ICAO is immediately notified.

[37] Air Traffic Organization Policy, U.S. Department of Transportation Federal Aviation Administration Order JO 7110.65U, at 2-1-1 (2012). *See also* Aeronautical Information Manual: Official Guide to Basic Flight Information and ATC Procedures, U.S. Department of Transportation Federal Aviation Administration 5-5-1 (2012).

[38] Air Traffic Organization Policy, U.S. Department of Transportation Federal Aviation Administration Order JO 7110.65U, Chapter 4 (2012).

[39] Ibid., 3-9-4 – 3-9-10.

Area).[40] However, while these high level rules ensure the functioning of the system as a whole, they simply cannot envisage all possible situations that arise in practice, invariably leaving gaps in regulation. Case law plays a crucial role in filling in these gaps and increasing the overall safety of the system. For example, as early as the 1960s, US courts maintained that the lack of requirement to separate VFR aircraft from other traffic does not relieve ATC from the duty to inform aircraft on converging flight paths of the dangerous situation.[41]

However, this undoubtedly positive influence of legal precedents on the development of national law in the field of air navigation services is limited to Common law jurisdictions with a strong aviation industry, such as the US. The few cases involving ANSPs in Civil law systems unfortunately paint an entirely different picture. For example, in ITAVIA SPA v. Ministry of Defence, Ministry of Transport and Ministry of the Interior,[42] one of the legal proceedings following the crash of a McDonnell Douglas DC 9-15, carrying 77 passengers and 4 crew members, the airline brought action against the three ministries under which the Italian ANSP rendered its services. Although the authorities issued conflicting reports and no single cause of the explosion that brought down the aircraft was established, the court of first instance awarded ITAVIA damages. This decision was upheld by the Supreme Court of Cassation, which found that "the duty of ANSPs to prevent possible accidents was not performed". The dangers of such broadening of the scope of public responsibility so as to encompass events which haven't even been properly ascertained, are evident, as it may subject ANSPs to strict liability,[43] contrary to the generally established fault-based liability. Of course, the potential negative repercussions of this case are limited by the non-binding status of case law within the Civil law system, however the decision should not be taken lightly either, as lower courts in practice find the argumentation of judgments of the Supreme Court of Cassation persuasive.[44]

The positive aspects of national regulation discussed herein suggest that where air navigation services are provided within the boundaries of a state (traditional scenario), national regulation of ANSP liability issues generally suffices.

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[40] Ibid., 7-9-1 – 7-9-2, 7-7-1.
[41] *See, e.g., Cattaro v. Northwest Airlines Inc.*, 236 F. Supp. 898 (E.D. Va. 1964), *State of Maryland v. United States*, 257 F. Supp. 768 (D. Md. 1966), *Allegheny Airlines, Inc. v. United States*, 420 F. Supp. 1339 (S.D. Ind. 1976).
[42] Nr. 527/84 A G.I. (2003).
[43] G. Guerreri, *Hasty Justice*, XXIX/6 Air & Space Law 453 (2004).
[44] (http://en.wikipedia.org/wiki/Court_of_Cassation_(Italy)), last visited (12/05/2012).

3. CROSS-BORDER PROVISION OF AIR NAVIGATION SERVICES

3.1. Formalized agreements on the delegation of air navigation services

While preceding analysis shows that national regulation of liability issues arising from the provision of air navigation services within state boundaries might benefit from a uniform approach, but does not unavoidably call for an international legal framework, cross-border provision of air navigation services inextricably involves some degree of international collaboration (between ANSPs or respective states) and raises additional liability issues for those concerned.

The legal grounds for the cross-border provision of air navigation services are provided in Standard 2.1.1 of Annex 11 to the Chicago Convention, which requires a state wishing to delegate to another state the responsibility for establishing and providing air traffic services to enter into a formal agreement to that effect with the latter.[45] Naturally, due to the more complex nature of cross-border arrangements than traditional models, such agreements also need to address issues of jurisdiction and conflict of laws in order to ensure the protection of victims of accidents caused by ANSP errors.[46] In addition, they should provide rules on the allocation of liability and related recourse actions, aimed at protecting the interests of states that may entertain a claim without being liable for the error of a foreign ANSP.[47] These considerations have given rise to several different ANSP liability models,[48] of which two are principally implemented in practice.[49]

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[45] Air Traffic Services, Annex 11 to the Convention on International Civil Aviation, International Standards and Recommended Practices, ICAO 2-1 (2001).

[46] F. Schubert, *The Liability of Air Navigation Services Providers: Some Lessons from the Single European Sky*, *in* D. Calleja Crespo, P. Mendes de Leon, *Achieving the Single European Sky: Goals and Challenges*, Aviation Law and Policy Series, Vol. 8, at 54 (2011).

[47] Ibid.

[48] These are not to be confused with the two main doctrines on the liability of ANSPs in traditional service provision cases: the *state primary liability* doctrine, which renders the state liable for any damage caused as a result of its ANSP's fault (and allowing the state to then claim compensation from the ANSP), and the *state ultimate liability* doctrine, which holds the ANSP primarily liable, while the respective state covers claims that exceed the financial capacity of the ANSP. From a purely legal point of view, in cases where air navigation services are provided by a separate privatized entity (e.g. NATS in the UK) it is also possible to hold the service provider *exclusively* liable for damages caused by its errors, however considering the moral dimension of aviation accident cases, it would be politically unacceptable for a state not to intervene. Hence, in all three cases, the state will one way or another compensate victims. For a discussion of these issues, *see, e.g.* N.A. van Antwerpen, Cross-Border Provision of Air Navigation Services With Specific Reference to Europe: Safeguarding Transparent Lines of Responsibility and Liability, PhD thesis, Leiden University 176 (2007), F. Schubert, *The Liability of Air Navigation Services in the*

Under the 'territorial state' model, most commonly found in Europe, claims are to be addressed to the delegating state, the courts of which hear such claims in its courts and apply the national law of that state.[50] The bilateral agreement would entitle the delegating state to a right of recourse against the provider state for compensation paid.[51] This model is, for example, featured in the 1967 Agreement between Germany and Austria,[52] the 2002 Agreement between Germany and Switzerland,[53] the 2003 Agreement between Germany and the Netherlands.[54]

The 'effective service provider' model renders the ANSP in question primarily liable for damage caused.[55] Although this model may be considered to have an advantage over the territorial state model in that it does not encumber national courts with additional recourse actions, this benefit is subdued by the potential of actions directed against the delegating state. This is because the 'effective service provider' model usually needs to contain provisions making it possible for actions to be brought also against the territorial state, as laws of many states do not allow their nationals to be deprived of the fundamental right to sue their state in national courts.[56]

Single European Sky, XXVIII Annals of Air & Space Law 65-69 (2003), M. Chatzipanagiotis, *Liability Aspects of Air Traffic Services Provision*, XXXII/4-5 Air & Space Law 342 (2007).

[49] F. Schubert, *The Liability of Air Navigation Services Providers: Some Lessons from the Single European Sky*, *in* D. Calleja Crespo, P. Mendes de Leon, *Achieving the Single European Sky: Goals and Challenges*, Aviation Law and Policy Series, Vol. 8, at 55 (2011).

[50] N.A. van Antwerpen, Cross-Border Provision of Air Navigation Services With Specific Reference to Europe: Safeguarding Transparent Lines of Responsibility and Liability, PhD thesis, Leiden University 179-180 (2007), F. Schubert, *The Liability of Air Navigation Services in the Single European Sky*, XXVIII Annals of Air & Space Law 57, at 75-80.

[51] F. Schubert, *Legal Aspects of Cross-Border Service Provision in the Single European Sky*, 35/2 Air & Space Law 138 (2010).

[52] Vertrag zwischen der Bundesrepublik Deutschland und der Republik Österreich über Auswirkungen der Anlage und des Betriebes des Flughafens Salzburg auf das Hoheitsgebiet der Bundesrepublik Deutschland, vom 19/12/1967, BGBI II 1974, 13.

[53] Vertrag zwischen der Schweizerischen Eidgenossenschaft und der Bundesrepublik Deutschland über die Durchführung der Flugverkehrskontrolle durch die Schweizerischen Eidgenossenschaft über deutschem Hoheitsgebiet und über Auswirkungen des Betriebs des Flughafens Zürich auf das Hoheitsgebiet der Bundesrepublik Deutschland, vom 18/10/2001, BBl 2002 3375 (2002). The Agreement has not been ratified yet, the text of the agreement is accessible at (http://www.admin.ch/ch/d/ff/2002/3406.pdf), last visited (12-05-2012).

[54] Verdrag tussen het Koninkrijk der Nederlanden en de Bondsrepubliek Duitsland inzake de uitoefening van de luchtverkeersleiding door de Bondsrepubliek Duitsland boven Nederlands grondgebied alsmede de gevolgen van het burgergebruik van luchthaven Niederrhein op het grondgebied van het Koninkrijk der Nederlanden, 29/04/2003, Tractatenblad van het Koninkrijk der Nederlanden Nr. 85 (2003).

[55] F. Schubert, *Legal Aspects of Cross-Border Service Provision in the Single European Sky*, 35/2 Air & Space Law 138 (2010).

[56] Ibid.

Hence it is doubtful that the effective service provider model can be regarded as a separate and valid alternative to the territorial state model, but rather seems to be a variation of the latter.[57]

The reason why the territorial model has been implemented so often in practice is because it most closely matches the international mechanism set out in Article 28 of the Chicago Convention, to be read in conjunction with Standard 2.1.1 of Annex 11 thereto. The delegating state is clearly the state in whose territory air navigation services are provided, which is why it is the one that is responsible to "provide air navigation facilities to facilitate international air navigation".[58]

Due to the nature of the relatively few anticipated cross-border arrangements at the time when this delegation mechanism was established, it was tailored to cater for bilateral agreements on the provision of air navigation services, which are now being eclipsed by multilateral arrangements, such as those envisaged in the Single European Sky regulations.

3.2. Single European Sky: next generation of cross-border arrangements

The Single European Sky concept,[59] which marks the beginning of a new era in cross-border provision of air navigation services, is based on a multilateral approach, which, albeit not in conflict with the ICAO bilateral delegation mechanism, may not be entirely compatible with the latter either. The idea of structuring airspace according to functional requirements and not political boundaries, so as to increase the efficiency of ANSPs forms the core of the Single European Sky concept.[60] At the same time, notions 'delegating state' and 'territorial state', key to the models discussed above, are less applicable to functional airspace blocks which involve multilateral agreements, making it difficult to ascertain which state is delegating the provision of

[57] Ibid.
[58] Convention on International Civil Aviation, 15 UNTS 295, ICAO Doc. 7300, art. 28 (1944).
[59] The regulatory framework of the concept is provided in four documents: Regulation (EC) No 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European sky. – OJ L 96. 31.3.2004. P. 1–9; Regulation (EC) No 550/2004 of the European Parliament and of the Council of 10 March 2004 on the provision of air navigation services in the single European sky. – OJ L 96. 31.3.2004. P. 10–19; Regulation (EC) No 551/2004 of the European Parliament and of the Council of 10 March 2004 on the organisation and use of the airspace in the single European sky. – OJ L 96. 31.3.2004. P. 20–25; Regulation (EC) No 552/2004 of the European Parliament and of the Council of 10 March 2004 on the interoperability of the European Air Traffic Management network. – OJ L 96. 31.3.2004. P. 26–42.
[60] P. Mendes de Leon, Air Traffic Management in Europe and the Establishment of a Single European Sky, Presentation delivered at Leiden University on April 12, 2012, at 2 (2012), M. Franklin, *Sovereignty and Functional Airspace Blocks*, XXXII/6 Air & Space Law 425 (2007).

air navigation services. For this reason, it seems more appropriate to apply the 'provider state' model to functional airspace blocks. The model, incorporated in the EUROCONTROL Model Agreement on the Delegation of Air Traffic Services renders the state responsible for the provision of air navigation services liable for the fault of its ANSP, allows claims to be brought in courts of the providing state, which shall apply the laws of the providing state.[61]

As detailed and comprehensive as the Single European Sky legislative package may be, it neither provides substantive rules on the liability of ANSPs, nor establishes provisions to resolve conflicts of laws or jurisdiction,[62] and therefore fails to provide a satisfactory framework for the liability of ANSPs on the EU level. It seems therefore, that the Regulations favour a bottom-up approach that leaves the regulation of this issue to EU member-states.[63] Although from the perspective of European Law such strict adherence to the principle of subsidiarity[64] may be appropriate, it is evidently not suitable for the regulation of contemporary arrangements for the cross-border provision of air navigation services. To a great extent this is attributable to the lack of harmonisation of civil laws and the fact that the Regulations failed to take into account the scepticism of EU states towards multilateral liability arrangements,[65] as a result of which no regulation of ANSP liability on the international level is currently in place.

However, this stalemate must not continue, as practice has already shown that absent an international agreement, states may end up compensating victims without any recourse against the ANSP at fault. To illustrate the point, one can turn to the 2002 Überlingen mid-air collision. German national law upholds the state primary liability doctrine, whereas Swiss national law

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[61] Common Format Letter of Agreement Between Air Traffic Services Units, Annex 1 Model Agreement on the Delegation of Air Traffic Services , EUROCONTROL, ASM.ET1.ST015 DEL01/02, Ed. 3, Article 5 (2005).

[62] F. Schubert, *The Liability of Air Navigation Services Providers: Some Lessons from the Single European Sky*, *in* D. Calleja Crespo, P. Mendes de Leon, *Achieving the Single European Sky: Goals and Challenges*, Aviation Law and Policy Series, Vol. 8, at 56 (2011).

[63] M. Chatzipanagiotis, *Liability Aspects of Air Traffic Services Provision*, XXXII/4-5 Air & Space Law 350 (2007).

[64] Under Art. 5(3) of the Treaty on European Union, "... in areas which do not fall within its exclusive competence, the Union shall act only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States...". Consolidated Version of the Treaty on European Union. OJ C 83/13, 30.03.2010. This fundamental principle of EU law is addressed in greater detail in the Protocol on the Application of the Principles of Subsidiarity and Proportionality, OJ C 310/207, 16.12.2004. See also, T.C. Hartley, The Foundations of European Union Law 122-123, 7th Ed. (2010), J. Steiner, L. Woods, EU Law 61-64, 10th Ed. (2009), P. Craig, D. de Búrca, EU Law: Text, Cases, and Materials 100-105 4th Ed. (2008).

[65] F. Schubert, *The Liability of Air Navigation Services Providers: Some Lessons from the Single European Sky*, *in* D. Calleja Crespo, P. Mendes de Leon, *Achieving the Single European Sky: Goals and Challenges*, Aviation Law and Policy Series, Vol. 8, at 58 (2011).

endorses the state ultimate liability doctrine.[66] Notwithstanding the fact that the effective cross-border service provider at fault was the Swiss ANSP, the German state could not, under national law, redirect the plaintiff to the former. As N. van Antwerpen points out, had the German state entered into a treaty with Switzerland, had the parties agreed on relevant liability issues and had Germany implemented these arrangements in its national laws the outcome could have been different.[67]

Finally, an important constitutive element of the Single European Sky concept is the Single European Sky ATM Research (SESAR) project. Launched as a public-private partnership, and composed of two founding members (EU and EUROCONTROL), SESAR relies on its 15 industry members to develop technical solutions reducing the fragmentation of European airspace.[68] Naturally, this modernization of the current ATM system will undoubtedly lead to the automation of the provision of air navigation services, raising new liability issues and emphasising yet again the need to address these topical issues on an international level.

Hence it seems that both the concept of functional airspace blocks and the relevant technical developments significantly impact the environment in which ANSPs operate and thus stress the importance of establishing a solid international framework governing the various liability issues resulting from the cross-border provision of air navigation services.

4. CONCLUSION

The continuous growth of air traffic sharing a common, scarce resource, necessitates constant improvements of air navigation services in order to ensure appropriate safety levels. Thankfully, low figures of aviation incidents and accidents caused as a result of ANSP errors suggest that safety levels are indeed high. However as rare as they may be, ANSP errors have the

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[66] F. Schubert, *The Liability of Air Traffic Control Agencies: A Case Study*, Presentation delivered at Leiden University on May 02, 2012, at 3 (2012).

[67] N.A. van Antwerpen, Cross-Border Provision of Air Navigation Services With Specific Reference to Europe: Safeguarding Transparent Lines of Responsibility and Liability, PhD thesis, Leiden University 176 (2007).

[68] The 15 industry members include, among others, aircraft and avionics manufacturers, satellite communication and air navigation service providers. I. Middleton, Single European Sky vs. Next Gen (US) From a Regulatory Perspective, Presentation delivered at the Worldwide Airport Law Conference: Airports In a Changing Aviation World – How to Regulate?, April 25-27, 2012, at 19 (2012).

potential of causing terrible damage to life and property. It is for this reason that the legal regulation of the liability of air navigation service providers is such an important issue.

The analysis of the current legal regime of ANSP liability in traditional scenarios, involving the provision of air navigation services over the territory of the ANSP's home state, has demonstrated that the national legislation in place, notwithstanding important drawbacks in terms of legal uncertainty from the standpoint of victims of aviation accidents, offers an acceptable regulatory framework. While the conclusion of a complementary international convention in these traditional scenarios seems desirable, it becomes extremely attractive in the context of cross-border provision of air navigation services.

The adoption of the Single European Sky legislative package can be viewed as a significant stimulus for the adoption of an international instrument, as the package itself does not address liability issues, and the states' lack of will to embrace the bottom-up approach has resulted in a stalemate at a time when cross-border provision of air navigation services is rapidly expanding. As F. Schubert points out, "the complexity of the matter derives much less from the intrinsic nature of liability itself, than from the possible difficulties to harmonise domestic liability legislations".[69] Yet it is clear that without international (or at least regional) solutions,[70] the innovative and promising concept of functional airspace blocks may not develop into its fully-fledged form. To exemplify the point, because of its geographical position, the functional airspace block between Denmark and Sweden is a good candidate to join a larger block – the North European FAB, consisting of Estonia, Finland, Latvia and Norway, but for that to happen, interested parties must share a common vision of the ANSP liability framework to be implemented.

Finally, even if the changing landscape of cross-border service provision in Europe does not form a convincing argument in favour of an international liability framework, technological advancements in the field of ATM certainly do. SESAR, the technical backbone of the Single European Sky initiative, is introducing highly automated systems that suggest a gradual shift in

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[69] F. Schubert, *The Liability of Air Navigation Services in the Single European Sky*, XXVIII Annals of Air & Space Law 60 (2003).

[70] For a discussion of these, *see, e.g.* N.A. van Antwerpen, Cross-Border Provision of Air Navigation Services With Specific Reference to Europe: Safeguarding Transparent Lines of Responsibility and Liability, PhD thesis, Leiden University 209 *et seq.* (2007), M. Chatzipanagiotis, *Liability Aspects of Air Traffic Services Provision*, XXXII/4-5 Air & Space Law 338 (2007).

the responsibility for the safety of the whole ANS system from service providers to ATM equipment manufacturers and system developers,[71] thereby raising new ANSP liability issues that require legal regulation, and further emphasising the unsustainability of maintaining the *status quo*.

[71] G. Contissa et al., Automation and Liability in ATM as Fundamental Issues in Socio-Technical Systems, Paper delivered at the 2nd International Conference on Models and Technologies for Intelligent Transportation Systems, June 22-24, 2011, at 1 (2011).

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