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Air Traffic Controller license comes into force

by Marc Baumgartner[1]

Introduction

At last! The Air Traffic Controller (ATCO) license has become an implementation regulation and validates the long journey from an ICAO based Annex 1 approach, to something which might be seen in the future, as one of the important foundations for the success of the Single European Sky – as stated by the Madrid declaration that the Human and the human factor is the 5th – overarching pillar of the Single European Sky II. In particular air traffic controllers have been working hard to get to this point. The Implementation Regulation 805/2011[2] has come into force and all European Member States and associated States to the Single European Sky will have to transpose it directly into a mandated application. Mandating a European license of an air traffic controller recognizes the importance of the profession and the improvement in harmonization. This gives to the European ATCO the rights and privileges associated with the license and lays the foundation to possible future increased mobility as envisaged by the European Commission.

The second legislative package of SES II[3] has introduced the notion of 5 pillars for success, consisting of: implementing a new regulatory framework based on a performance framework and a coherent and efficient governance structure; building the most advanced technology in Europe through SESAR[4]; achieving the highest safety standards through the extension of EASA's competences for the safety certification of ATM and airports by 2012 and 2013 that will give to a single entity the responsibility of safety in the entire aviation chain; integrating the ATM infrastructure into a gate – to –gate approach, meaning to include airports in the framework and; acknowledging the human factor as the overriding enabler of change.

This article describes a little bit of history with regard to the publication of the implementation regulation and offers a possible outlook for the future work related to the extension of the EASA competence in the field of ATM/CNS. Furthermore it comments, from a professional perspective, some of the Implementation regulation articles.

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2 OJ L206, 11.8.2011 p.21
3 Declaration of Madrid 2010 – EU high level conference on the roadmap to implement Single European Sky
4 www.sesarju.eu

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Background

Following the decision to create the single European Sky[5] in 1999 and the subsequent work developing the EC regulatory framework to establish European Union competence in the field of air traffic management, one of the important moves was to improve harmonization of the air traffic controller licensing scheme and the associated training and medical requirement, which was stated at the time. Most of the states were following the ICAO Annex 1 approach and participated in the Eurocontrol lead work on the Common Core Content[6] [7]with regard to training and licensing. A lot of work had already been carried out by the experts at Eurocontrol level when the Commission decided to start the process of elaborating an EC directive. This directive had, among others, the aim to improve mobility (recital 20 of the new EC regulation)[8] for Air Traffic Controllers. A major part of the Eurocontrol work could be introduced into the EC directive and subsequently passed to the political process of parliament consultation and member states consultation. As a result the EC directive 2006/23/EC came into force in 2006.

With the extension[9] of competence in rulemaking of EASA, a new actor has become an important player in the realization of the European Implementation Regulation we have now in front of us. In order to press ahead the SES process, the Single Sky Committee (SSC) accepted in December 2009 the proposal of the European Commission to push for an accelerated process for three key tasks (ATM 001, 003, 004[10]). This process has been translated into the so-called "fast-track" approach, which means to transpose the existing rules with a minimum of technical changes/updates and opinions issued by the Commission for Implementation Regulation without the normal Notice of Proposed Amendment process nor formal public consultation conducted by EASA.[11]

The need to integrate the ATCO directive as one of the first steps into the EASA process was highlighted by all concerned. With a letter signed by the European Commission, EASA was instructed to create a fast track approach for the ATCO license which resulted in a more or less "*copy paste*" exercise of the EC directive 2006/23. In summer 2010 EASA organized a conference where all stakeholders were consulted. EASA proposed the outcome of the conference in form of a revised opinion on a possible Implementation Rule to the European Commission. Due to the fast track approach this conference replaced the public consultation mechanism which is normally used by EASA Notices of Proposed Amendments[12].

5 EC COM 99/0614
6 Eurocontrol European Manual for Personnel Licensing, Air traffic controllers, 2004
7 Eurocontrol Specification for the ATCO Common Core Content Initial Training
8 Recital 20 of EC 805/2011
9 OJ L309/51
10 ATM 001 Rule making group Develop Implementing Rules (and - as appropriate - AMC's, CS and GM) applicable to Air Navigation Service Providers and associated Air Navigation Services to support the Essential Requirements of the amended BR.
ATM 003 extension of the EASA system to safety regulation of ATM and Air Navigation Services (ANS) - development of rules on Requirements on Air Traffic Controller licensing.
ATM 004 Extension of the EASA system to safety regulation of Air Traffic Management (ATM) and Air Navigation Services (ANS) - development of rules on competent authorities.
11 Skyguide, internal publication 2011
12 http://www.easa.eu.int/atm/npas-atm-ans.html

The implementation regulation was published in the Official Journal on 10th of August 2011 and came into force 20 days later on 30th August 2011.

Analysis of the text

The implementation regulation (which as described above is very similar to the EC directive 2006/23) describes in the preamble (28 recitals) the aims of the Regulation as being a cornerstone for the uniform safety approach. Following the call for more detailed implementation rules under Single European Sky II legislation (EC 1070/2009), recital 2 of 805/2011 gives a good overview of the political ambition of this regulation by stating: *"in order to maintain a high uniform level of civil aviation safety in Europe, to achieve the highest standards of responsibility and competence, to improve the availability of air traffic controllers and to promote the mutual recognition of licenses while pursuing the objective of an overall improvement in air traffic safety and competence of personnel."*

Based on the successful implementation of the ATCO directive, this new regulation should assist to overcome the perceived fragmented air traffic service provision (recital 4), while recognizing the important role the air traffic controllers play in maintaining safety at the highest level. Based on (recital 6) ICAO SARPS and Eurocontrol work previously carried out, the common approach utilizes the most up to date methods incorporating best practices in training for air traffic controller. Recital 7 gives the possibility to EASA to assess compliance by states with regard to transposition and invites the production of certification requirements, acceptable means of compliance and guidance material. This in order to prove the competence required (recital 9). Recital 11 establishes that the license is like a professional diploma and due to the nature of the job there is a need to have the additional skills acquired such as unit endorsements and ratings recorded in order to reflect the specific skills required when performing variable services of Air traffic Management.

The specific rating training can vary from 3 – 12 months specific training (with theoretical, simulator and "on the job" training for the various forms of ATM). Article 10 introduces 6 different ratings which break down into the specificities of the various services offered.
As an example we recognize three major categories of services commonly known in ATM as (Aerodrome, Approach or Terminal and Enroute). To make things even a little bit more complicated for the reader and maybe also from an administrative point of view, each of the ratings has a set of specific endorsements (article 11.1 ff). In the case of Aerodrome these can be further categorized in: Tower Control, Ground Movement Control, Ground Movement Surveillance Air Control or Aerodrome Radar Control.

By introducing recital 12, the implementation directive acknowledges that the license should not automatically be linked to the ATCO's involvement in safety incidents and that

a revocation of the license should only be seen as the last resort in extreme cases. Extreme cases are however not defined. One of the elements of Single European Sky is the Safety Pillar and the notion of just culture[13]. This recital can only be applauded when this concept of just culture is mentioned in the context.

From a social partner or collective bargaining point of view, the license should not be used to circumnavigate national or company social partners' arrangements. This being an important point, in particular in the future work on some of the operational and authority requirements currently in drafting stage at the EASA ATM001 rule making group (recital 25 introduces the license under a total aviation system approach and links the need for further work in a second phase).

Recital 16, Article 13 and Annex III address the important safety issue of language proficiency. It provides through the inclusion and the detailed description in Annex III an excellent impetus to the ICAO globally led initiative on language proficiency which has become mandatory SARPS, but from an IFATCA perspective has not been successfully transposed in many states around the world. Even in the EU, some states, for mainly economic reasons, have minister of transports declaring that thousands of ATCOs are compliant with the language proficiency, whereas in reality no evidence of this has been provided (no exam, no training etc.). With the implementation regulation in force such national derogation will not be possible anymore and that is only to be welcomed.

Initial training

The Eurocontrol's specification for the ATCO Common Core Content Initial Training plus ICAO recommended practices shall be used to establish a specific training standard for air traffic controllers. As recital 17 mentions correctly, initial training is quite expensive[14] and therefore the need for a common recommended core content is important, not only for the standards for the air traffic controllers but as well for the Air Navigation Service Providers (ANSP) to be able to have trust and confidence in the other states training standard. This becomes of particular importance in the mentioned case of mutual recognition of the license and possibly increased mobility (Recital 20).

Eurocontrol's Medical Certification requirements are the cornerstone for the medical requirements linked to an ATCO license. Medical class 3 shall be the applied standard. With the extension to the EASA system, these specifications might be adapted in the future.

13 OJ L201/1 EC 691/2010 §2 (k) '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, willful violations and destructive acts are not tolerated;

14 An average of 600.000€ are the costs for training a fully qualified ATCOs (duration varies from 24-42 month depending the complexity of the workplace and the training standards)

Certification of training institutes becomes a guarantee that the training institute offering ATCO courses do fulfill the conditions and pre-requisites for certification (art.18) which are listed in chapter IV of the regulation.

Due to the ever changing environment of the air traffic controller[15] and the technological innovation which is a part of the daily business for an ATM provider, it is noted that recital 21 introduces the need to keep the skills of air traffic controllers regularly updated. This is additional to the unit requirements to assess the competence of the applicant (ATCO) through establishing a minimum number of hours and other assessment methodology (art. 12. 3. ff).

Recitals 22 to 28 introduce the notion that the social partners have to be associated in all the work related to the implementation regulation at EU level and that for those states where there might be an impact on daily working practices of ATCOs, the social partner at national level have to be consulted.

It further indicates the impact of the fast track procedure and the future possible work on the revision of this implementation regulation, in the light of the changes which might have to be faced in the current environment.

The articles of the implementation regulation itself have been published in what is perceived as a good logic, as it describes in chapter one (general provisions) the objective, subject matters, and offers 15 definitions. Of interest in the future is article 4 which defines the competent authority and provides the hook for future rulemaking work at the EASA level.

Chapter II looks at licensing (the diploma) and the various forms of it (e.g. student license), explains the rating (which part of ATM services) the applicant will be providing and the specificities within the rating with the so-called endorsements. The minimum requirement for a unit endorsement is further mentioned and of course the language endorsement which becomes part of the basic requirements for a valid license. A special mention is art. 14 where the instructor endorsement is described in order to have as well qualified and recurrent instructors available.

Chapter III looks at the Medical Certification and Chapter IV at the requirements for training organizations and, last but not least, articles 21 to 29 describes the task of the competent authorities, exchange of information and the recognition of the license. Chapter VI contains the final provision and the annexes which give some more information on particular elements mentioned in the other articles.

15 An average ATCO has to face up to 40 changes a year with regard to procedure, technical equipment, administrative requirements etc.

In conclusion

Following the political initiative of the Single European Sky, the need for a harmonized approach to controller training and licensing has been put high on the agenda of the European Commission and has subsequently led from an EC directive to an implementation regulation.

From a professional point of view this is to be welcomed and certainly the end result in force now is meeting most of the modern requirements and scientific results an air traffic controller can expect.

For the competent authorities and as well for the ANSP, the introduction of the implementation regulation means more administrative work, lesser possibility to have nationally differing system (e.g. declaring ATCOs language proficient – without the required training). This could however be beneficial in cases where the mobility or the dynamic provision of air traffic control across borders will require to have a common standard and confidence in the others system.

For the air traffic controllers in Europe it is a major achievement as their license can now be European wide recognized. In some countries this License is recognized in the academic harmonization programs and/or corresponds to a recognized higher education specialised degree (engineer).

International Air Transport Economic Regulation: Globalization vs. Protection of National Interests

by Francesco Fiorilli[1]

1. Introduction

International air transport, one of the major catalyst of the globalisation process, is still trapped in a thick net of anachronistic bilateral relations, where 'the government barter, not the entrepreneurial acumen of airline managements, has been the principal instrument of new transnational market development in this most technologically precocious industry.'[2] Requirements placed both by air services agreements and national legislation on the ownership and control structure of air carriers limit access to foreign capital, know-how and technology, thus preventing airlines to exploit commercial opportunities ensured by globalization. 'Recent' developments in the air transport industry, such as airline alliances, code-sharing agreements and mergers between airlines (although limited for nationality concerns) clearly show the need to rethink and restructure the international aviation so as to open the global marketplace for truly international airline operations.

2. The Emergence of Bilateralism

At the International Civil Aviation Conference in Chicago in November 1944 two political attitudes had been confronted, respectively supported by the two major aviation Powers. United States supported a free trade approach, based on a multilateral exchange of the five 'Freedoms of the Air',[3] so as to allow air transport services to be provided efficiently and economically.[4] United Kingdom pushed for the establishment of an international regulatory body to distribute international routes and determine capacities, frequencies and fares, so as to guarantee its air transport industry to recover after the World War II without facing an extremely hard competition from the American counterpart.[5] None of the two approaches made its way through the Chicago Conference and thus, the economic regulation of international civil aviation was left out of the Chicago Convention.[6]

Fearing to be excluded from the international air transport market and fearing the monopoly/oligopoly of the United States/few other States capable of providing air services, Governments saw the bilateral and reciprocal exchange of traffic rights as the only way to control the

1 The author holds a LL.M. (Hons) Advanced Studies in Air and Space Law (2010-2011) from the International Institute of Air and Space Law, Leiden University – The Netherlands. This article is a short abstract of the thesis submitted in partial fulfilment of the requirements for the LL.M. programme.
2 BF Havel Beyond Open Skies: A New Regime for International Aviation (Kluwer Law International The Hague 2009) 9.
3 For a definition of the 'Freedoms of the Air' see ICAO 'Manual on the Regulation of International Air Transport' (2nd edn, 2004) ICAO Doc 9626, [4.1].
4 B Stockfish 'Opening Closed Skies: The Prospects for Further Liberalization of Trade in International Air Transport Services' (1991) 57 Journal of Air Law and Commerce 599, 603.
5 PS Dempsey 'Turbulence in the "Open Skies": The Deregulation of International Air Transport' (1987) 15 Transportation Law Journal 305, 312.
6 Convention on International Civil Aviation (Chicago Convention) (adopted 7 December 1944, entered into force 4 April 1947) 15 UNTS 295.

development of commercial international air transport, while ensuring their participation – actual or potential – in the market.

Since the early protectionist agreements, which included price-fixing, capacity and frequency limitations, and limitations on the designation of air carriers, important steps forward have been made towards an increasing liberalization of international air transport services. Starting from 1992, for instance, the United States have led such reform by developing the so-called Open Skies model agreement, a renewed initiative 'to temper the mercantilism…of the original restrictive bilateral model,'[7] so as to grant contracting parties unlimited access to operate services to, from and beyond any point in each other's territory. Nevertheless, despite the inspiring name given to such initiative, and despite the success of this model agreement, the skies are still not open to the fullest extent. Certain restrictions remain or are made subject to further negotiations, in particular: national ownership and control requirements for designated air carriers, seventh freedom operations and cabotage.[8]

3. Going Beyond Bilateralism

a. A 'Big-Bang' Approach

In 2006, Rush O'Keefe, former general counsel of FedEx Corporation, called for a new Chicago Convention 'to address the remaining issues of aviation liberalization in an aviation – specific forum.'[9] However, such initiative bears the risk of 're-institutionalizing the basic engineering principles of the old bilateral systems,'[10] even more today under the legacy of years of bilateralism. As an alternative, discussions in the aviation industry have focused on whether international air transport economic regulation could be efficiently brought under the umbrella of the World Trade Organization's (WTO) General Agreement on Trade in Service (GATS),[11] although the current system carves out a general exemption for 'traffic rights, however granted' through the Annex on Air Transport Services.[12]

The most debated issue relates to one of the core principles of the GATS system, the Most-Favoured Nation principle (MFN), and the impacts it would have on the liberalization of international air transport services. The MFN is a non-discrimination principle, which in practice makes the most liberal concessions available to any other member State of the WTO; a principle inconsistent with the current bilateral and reciprocal exchange or traffic rights.

7 BF Havel (n 1) 13.
8 P Mendes de Leon 'Before and After the Tenth Anniversary of the Open Skies Agreement Netherlands – US of 1992' (2002) 28/4-5 Air and Space Law 280, 288.
9 International Aviation Law Institute, DePaul University College of Law & Chicago Council on Global Affairs Sustainable Aviation Policies for America ad the World: A Leadership Summit – Synopsis of the Proceedings (2006) 15. Available at: http://lawprofessors.typepad.com/aviation/files/aviation_summit_2006_synopsis_0219.pdf (last visited 10 September 2011).
10 BF Havel (n 1) 524.
11 The GATS is one of the annexes to the Marrakesh Agreement Establishing the World Trade Organization (adopted 15 April 1994, entered into force 1 January 1995) 1867 UNTS 31874. It entered into force as a result of the Uruguay Round negotiations to provide for the extension of the multilateral trading system to services.
12 R Abeyratne 'Trade in Air Transport Services: Emerging Trends' (2001) 25/6 Journal of World Trade 1133, 1145.

In a market with harmonized liberalization commitments, the MFN does not create particular difficulties; this is not, however, the case of international air transport, where 'the application of MFN treatment might seriously disadvantage those who do open up their markets by making them vulnerable to predatory attacks by those whose markets remain protected.'[13] So-called free-riders,[14] namely those countries taking advantage of other countries' liberal policies, would abandon or refrain from any liberalisation process in their own market, enjoying unconditional access to foreign more liberalised market.[15] Overall, the GATS system as it stands, instead of promoting the hoped global liberalization, could seriously undermine it.

b. From Bilateralism...

The above-mentioned difficulties require, as a first step, to find ways forward starting from the current bilateral system. Actions taken by major aviation players could have the power to provoke a chain reaction in the air transport relations on a global scale, as experiences from the pasts clearly demonstrate.[16]

Already in September 1999 the Association of European Airlines (AEA), calling for the establishment of a Transatlantic Common Aviation Area (TCAA) between EU and US,[17] envisioned the need of a 'new, modern regulatory framework for international air transport'[18] going beyond the Open Skies model. All the air carriers of the TCAA would have been granted unrestricted commercial opportunities to fly to any point within the TCAA, including 'cabotage routes',[19] and all restrictions on ownership and control within the TCAA would have been lifted. Unfortunately, negotiations between EU and US have not followed this path; the Second Stage Agreement,[20] reached on 25 March 2010, has not made significant progresses, thus attracting critics from IATA and other commentators.[21] Nevertheless, as clearly expressed by John Byerly[22] during the 22nd European Air Law Association Conference, since further development is in both parties' interest, they will sooner or later come to this point.[23]

Such reform, however, is already taking place in the EU/Canada air transport relations. The

13 W Hubner P Sauvé 'Liberalization Scenarios for International Air Transport' 35/5 Journal of World Trade 973, 977.
14 For an excellent analysis of the 'free-rider' issue in the bilateral context, see P van Fenema 'EU Horizontal Agreements: Community Designation and the 'Free Rider' Clause' (2006) 31/3 Air and Space Law 172.
15 See also discussions on the interpretation of Article 7(2) of the Chicago Convention in P Mendes de Leon Cabotage in Air Transport Regulation (Martinus Nijhoff Publishers Dordrecht 1992).
16 For instance, the Bermuda I agreement between Untied States and United Kingdom became the model for bilateral negotiations on a global scale; the first Open Skies agreement, concluded in 1992 between US and The Netherlands, brought the air transport industry in a new era of liberal air transport relations.
17 Association of European Airlines Towards a Transatlantic Common Aviation Area (1999).
18 Ibid, 1.
19 Ibid, 7.
20 EU/US Air Transport Agreement (signed on 30 April 2007), available at http://ec.europa.eu/transport/air/international_aviation/country_index/united_states_en.htm (last visited 10 September 2011).
21 IATA Press Release, 25 March 2010. See http://www.iata.org/pressroom/pr/Pages/2010-03-25-01.aspx (last visited 10 September 2011).
22 Former U.S. Deputy Assistant Secretary of State for Transportation Affairs, Washington, D.C.
23 F Fiorilli 'Report on the 22nd Annual Conference of the EALA' (2011) 36/2 Air and Space Law 173, 173-174.

agreement[24] signed on 17-18 December 2009, represents indeed a groundbreaking in the aviation world, being construed so as to finally establishing a common aviation area between Canada and the EU. The agreement does not pursue this final objective through a 'big-bang' approach, but rather through a four-phased approach, linking the opening-up of the market to a progressive relaxation of ownership and control restrictions. When the final phase will be reached, 100% cross-border ownership will be allowed and respective air carriers will be granted full freedom to operate to, from, beyond and within each party's territory.

b. via Regionalism/Plurilateralism...

As an intermediate step, the benefits of bilateral common aviation areas could be extended by bringing together groups of like-minded States sharing the same liberal air transport policies through regional or plurilateral[25] initiatives.[26] Indeed, already within the PICAO, some delegations notably recognized that limiting the territorial scope of a multilateral agreement would facilitate States in reaching an agreement on the exchange of traffic rights.[27] The most prominent example is the unification of the European air transport market in 1992,[28] where the removal of restrictions on traffic rights,[29] removal of restrictions on national ownership and control within the EU and the creation of the concept of 'Community Carrier',[30] have generated enormous benefits in terms of traffic and competition.[31]

On the one hand, a plurilateral approach would enable a small group of like-minded States, even non contiguous one, with similar aeropolitical will to reach an agreement with limited associated bargaining costs and without the need to 'persuad[e] reluctant potential partners who happen to be geographically contiguous to enthusiastic ones.' On the other hand, a regional approach would also have several benefits. Indeed, within economic integrated

24 EU/Canada Air Transport Agreement, available at http://ec.europa.eu/transport/air/international_aviation/country_index/doc/canada_final_text_agreement.pdf (last visited 10 September 2011).

25 Plurilateral and regional initiatives do not differ substantially. Regional initiatives are a mere specification of plurilateral ones, due to the added geographical factor.

26 For instance, Article 18(5) of the EU/US Air Transport Agreement provides that: 'The Parties share the goal of maximising the benefits for consumers, airlines, labour, and communities on both sides of the Atlantic by extending this Agreement to include third countries. To this end, the Joint Committee shall work to develop a proposal regarding the conditions and procedures, including any necessary amendments to this Agreement, that would be required for third countries to accede to this Agreement.'

27 PICAO, Commission Number 3 of the First Interim Assembly 'Discussion on the Development of a Multilateral Agreement on Commercial Rights in International Civil Air Transport' (1946) PICAO Doc 2089 – EC/57, 26.

28 Liberalization was achieved progressively, beginning in 1986, through the "three packages," culminating in Council Regulation No 2407/92 of 23 July 1992 on licensing of air carriers, Council Regulation 2408/92 of 23 July 1992 on access for Community air carriers to intra-Community air routes, and Council Regulation 2409/92 of 23 July 1992 on fares and rates for air services. The three packages have been ultimately replaced by Council Regulation 1008/2008 establishing common rules for the operation of air services in the Community. All are available at http://eur-lex.europa.eu/en/index.htm (last visited 10 September 2011).

29 Cabotage restrictions have been removed only in 1997.

30 Council Regulation 1008/2008 defines a 'Community air carrier' as 'an air carrier with a valid operating licence granted by a competent licensing authority in accordance with Chapter II', Article 2(11); under Chapter II, Article 4 an undertaking can be granted an operating licence provided that 'Member States and/or nationals of Member States own more than 50 % of the undertaking and effectively control it, whether directly or indirectly through one or more intermediate undertakings, except as provided for in an agreement with a third country to which the Community is a party.'

31 JR Bonin 'Regionalism in International Civil Aviation: a Reevaluation of the Economic Regulation of International Air Transport in the Context of Economic Integration' (2008) 12 Singapore Year Book of International Law and Contributors 113, 114, citing European Commission Directorate-General for Energy and Transport Flying Together: EU Air Transport Policy (2007) 5.

regions 'relaxation of national interests becomes easier,'[32] since 'much of the political give and take…would already have taken place in the negotiations to form the broader regional market.'[33] In addition, geographical contiguity would help air carriers to better plan their networks, especially in hub and spoke systems.[34]

c. to Multilateralism

In the long period, as these regional/plurilateral blocks would begin to grow and link-up, the removed or reduced differences could create a truly international level playing field to make the 'final step forward' towards multilateralism.

3. Limitations on Foreign Investments

Nationality clauses have been included in the great majority of air services agreements since the emergence of bilateralism, and we still find them in recent Open Skies agreements.[35] The traditional text gives a contracting party the right to withhold or revoke the traffic rights granted to an airline designated by the other contracting party in any case where substantial ownership and effective control of the airline are not vested in the contracting party designating the airline or in nationals of such contracting party. In addition, limitations on foreign investments are also placed by national legislation, which ensures that bilateral treaties' requirements are met.

The origin of nationality requirements is sometimes surrounded by confusion and is subject of much controversy in air law debates.[36] Such confusion usually stems from the wrong idea that the Chicago Convention is the source. However, the Chicago Convention, with few exceptions,[37] and despite few proposals advanced during the Conference,[38] is not concerned with the nationality of airlines, but rather with the nationality of aircraft.[39] The first appearance of the nationality clause in the post-World War II air transport relations was rather in the other two instruments adopted during the Chicago Conference, namely the International Air Services Transit Agreement, concerning the first two 'Freedoms of the Air', and the International Air Transport Agreement, concerning all the five 'Freedoms of the Air'.[40]

32 Ibid, 120.
33 ME Levine 'Scope and Limits of Multilateral Approaches to International Air Transport' in OECD (ed) International Air Transport: The Challenges Ahead (OECD Paris 1993) 80.
34 Ibid.
35 See EU/US Air Transport Agreement (n 19) Article 4.
36 P Mendes de Leon 'Establishment of Air Transport Undertakings – Towards a More Holistic Approach' (2009) 15 Journal of Air Transport Management 96, 96-97.
37 Some Articles, for instance Article 7 and Article 81, make references to an 'airline of a State', without, however, defining the appropriate criterion to establish the link between the airline and the State, which is thus left to national laws.
38 For a detailed analysis of these proposals, *see* ZJ Gertler 'Nationality of Airlines: a Hidden Force in the International Air Regulation Equation' (1982) 48 Journal of Air Law and Commerce 51, 57 *et seq*.
39 PPC Haanappel 'Airline Ownership and Control, and Some Related Matters' (2001) XXVI/2 Air and Space Law 90, 91.
40 International Air Services Transit Agreement (IASTA) (adopted 7 December 1944, entered into force 30 January 1945) 84 UNTS 389, Article I(5); International Air Transport Agreement (IATA) (adopted 7 December 1944, entered into force 30 January 1945) 171 UNTS 387, Article I(6) (emphasis added). The IASTA found great success, while the IATA, drafted mainly upon insistence of the US, did not obtain the same enthusiasm, and following the withdrawal of the United States in 1946, it was ultimately abandoned.

Compared to the traditional criteria, however, the two instruments allowed every airline to be 'substantially owned and effectively controlled by the nationals of any other contracting State, of which there were intended to be many.'[41] The objective that the drafters wanted to achieve by including such clause in the two multilateral instruments is clear, when taking into account the political scenario at that time. After the World War II, the world was split in two: Allied and neutral powers on one side, Axis powers on the other side; only the formers were invited and able to participate at the Chicago Conference and thus it would have been undesirable should traffic rights granted to friendly States be passed into other hands without any control or possibility of intervention by the grantor State.[42]

Opponents to the uninhibited flow of investment capital in the airline industry have developed their position on the ground (rectius myth) that any change in the current system would have negative impacts on national security, national defence, employment, competition, and so on. However, several studies[43] and several commentators[44] have clearly demonstrated how such arguments are a mere expression of anachronistic national protectionisms, inconsistent with the current needs of the industry.

a. Which Way Forward?

Whatever the form and pace of liberalization of ownership and control restrictions, 'conditions for air carrier designation and authorization should ensure that safety remain paramount.'[45] While the current system 'have been successful in ensuring that flags of convenience have not entered aviation,'[46] complete removal of ownership and control restrictions 'could open up opportunities for airlines regulated by countries with lower safety standards to fly services between and within other countries.'[47] Therefore, any substitute criterion must ensure that a genuine link between the air carrier and the State responsible for supervising it is established.

Pablo Mendes de Leon notes that within the Chicago Convention, the only mentioned criterion to establish the link between an airline and a State is the 'principal place of business'.[48] Nevertheless, such criterion is surrounded by controversy, lacking a common

41 PPC Haanappel The Law and Policy of Air Space and Outer Space - A Comparative Approach (Kluwer Law International The Hague 2003) 146 (emphasis added).
42 ZJ Gertler (n 37) 61.
43 *See*, for instance, United States General Accounting Office (GAO) *Airline Competition: Impact of Changing Foreign Investment and Control Limits on US Airlines* (1992) GAO/RCED-93-7, 50.
44 *See*, for instance, DM Kasper *Deregulation and Globalization: Liberalizing International Trade in Air Services* (Ballinger Lexington 1988); K Böhmann 'The Ownership and Control Requirement in U.S. and European Union Air Law and U.S. Maritime Law – Policy; Consideration; Comparison' (2001) 66 Journal of Air Law and Commerce 689; RS Holtan-Murphy 'Flying the Unfriendly Skies: Federal Aviation Regulations as Regulatory Takings' (2003) 2003 Wisconsin Law Review 699.
45 Conclusions, Model Clauses and Recommendations of the Fifth Worldwide Air Transport Conference in ICAO 'Policy and Guidance Material on the Economic Regulation of International Air Transport' (3rd edn, 2008) ICAO Doc 9587, Appendix 4, A4-3.
46 YC Chang G Williams 'Changing the Rules – Amending the Nationality Clauses in Air Service Agreements' (2001) 7 Journal of Air Transport Management 207, 208.
47 UK CAA 'Ownership and Control Liberalization: a Discussion Paper' (October 2006) Ch 5, 7.
48 P Mendes de Leon (n 35). Article 83bis of the Convention reads: '…when an aircraft is registered in a contracting State… 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 all or part of its functions and duties as a State of registry…'

accepted definition. Many countries define the 'principal place of business' as the place where a company is incorporated, has its head office and senior management.[49] De facto, an airline could be incorporated in country A, while having its main operational centre in country B. Such uncertainty could blur the lines of responsibility and accountability for safety supervision among the States involved.

The ICAO Fifth Worldwide Air Transport Conference provided a solution to remove these uncertainties by adding the requirement of State 'effective regulatory control,' so as to ensure that safety oversight is actually exercised by the State where the airline has its principal place of business. The Conference suggested common criteria to identify the 'principal place of business' and 'effective regulatory control' as follows:

> **evidence of principal place of business is predicated upon:** the airline is established and incorporated in the territory of the designating Party in accordance with relevant national laws and regulations, has a substantial amount of its operations and capital investment in physical facilities in the territory of the designating Party, pays income tax, registers and bases its aircraft there, and employs a significant number of nationals in managerial, technical and operational positions.
> **evidence of effective regulatory control is predicated upon but is not limited to:** the airline holds a valid operating licence or permit issued by the licensing authority such as an Air Operator Certificate (AOC), meets the criteria of the designating Party for the operation of international air services, such as proof of financial health, ability to meet public interest requirement, obligations for assurance of service; and the designating Party has and maintains safety and security oversight programmes in compliance with ICAO standards.[50]

Accordingly, the Conference have also developed a bilateral model clause according to which each party shall grant the appropriate operating authorization to air carriers designated by the other party, provided that the designated airline has its principal place of business in the territory of the designating party and that the party designating the airline has and maintains effective regulatory control of the airline.[51]

Despite the efficiency of this solution in tackling safety concerns within the bilateral system, adjustment would be needed in regional or plurilateral common aviation areas where in principle airlines could have 'substantial amounts of their operations' – evidence of the principal place of business[52] – in more than one State, even non contiguous ones. Safety authorities based in one country would have difficulties to closely supervise an airline's

49 UK CAA (n 46) Ch 5, 4.
50 ICAO (n 44) Appendix 4, A4-4.
51 Ibid.
52 *See* fn 49 and text thereto.

operations throughout the whole region.[53] In this scenario it would thus be mandatory to have a close cooperation between national safety agencies in the region, implementing common safety standards, or to create a common safety authority following the example of the European Aviation Safety Agency (EASA).

In addition, problems related to the possible consequences on external aviation relations remain unsolved. Although 'there is a widespread support by States for liberalisation, in some form, of provision governing air carrier designation and authorisation,'[54] at the same time there are various approaches to and different paces of change.[55] Therefore, countries willing to liberalise foreign investment restrictions could face the opposition of illiberal countries, which would invoke bilateral nationality clauses to withdraw traffic rights. A global approach would be the only fully efficient solution. However, the still ongoing differences among countries make this option less likely to happen. In plurilateral or regional aviation areas, member States would have a stronger bargaining power and thus they would be more likely to 'impose' their will on their counterparts. In this respect, the European Union stands as an example: although not without difficulties, Member States and the European Commission on their behalf are amending their bilateral agreement so as to include the recognition of Community carriers. Convincing respective counterparts will surely be a tough process. Nevertheless, it is submitted that, like in the liberalisation of traffic rights, major aviation powers could have a catalyst effect on the global market, inducing the whole aviation community to change, or at least to accept other countries' relaxation of, foreign investment rules.

4. Competition Law Enforcement: from ex Ante to ex Post Protectionism?

In a truly liberalized aviation market a priori regulations would be replaced by ex post control of national competition authorities to ensure fair levels of competition and prevent possible abuses in the market. Lacking an international competition law regime and international enforcement procedures, competition law enforcement bears the risk to become a valid mean for States to protect national interests, undermining the essence of global liberalization. The ongoing discussions between European and Canadian carriers on the one side, and Gulf carriers on the other,[56] clearly show the problems arising form the protection of competition in an industry inherently transnational.

In its 1997 study addressing the future of international air transport the OECD notably stressed that 'the need for consistency and predictability in the application of competition rules has greatly increased'[57] due to the fact that 'unclear and conflicting competition rules

53 UK CAA (n 46) Ch 5, 5.
54 ICAO (n 44) Appendix 4, A4-3.
55 UK CAA (n 46) Ch 5, 15.
56 S Govidasami 'IATA: Gulf Arguments Rumble On' (7 June 2011) Air Transport Intelligence News, available at http://www.flightglobal.com/articles/2011/06/07/357652/iata-gulf-arguments-rumble-on.html (last visited 10 September 2011).
57 OECD *The Future of International Air Transport Policy: Responding to Global Change* (OECD Paris 1997) 113.

may create uncertainty regarding the extent to which co-operative activity is lawful, thereby compromising the efficiency of the restructuring process.'[58] Indeed, 'compliance with two or several sets of rules can expose airlines to substantial additional cost,'[59] in particular when they affect the formation of global networks, cross border mergers and the development of global alliances. In this regard, the OECD has recommended two 'interim' solutions, which are deemed to be essential for a sustainable development of air transport towards globalization: in the short term, 'in cases of overlapping jurisdiction between several authorities, they should seek without delay consistent analytical approaches and remedies;'[60] in the long term, 'convergence of national competition policies and enforcement practices, which is already under way in the OECD area, [should] continue.'[61]

ICAO as well has been keen to provide guidelines. The main idea underlying such guidelines is that the unilateral regulation by one State of conducts of an airline of another State by the use of competition law enforcement not accepted by other States (i.e. extraterritorialism) 'increases the likelihood of disputes between them which could adversely affect international air transport.'[62] Accordingly, when a State is implementing its competition laws, policies and practices, full and sympathetic consideration should be given to the views expressed by any other State or States whose significant international air transport interests might be affected;[63] 'consultation should take place among those States to seek an understanding on what competition laws, policies and practices shall be applied in such relations so as to provide airlines with as much legal certitude as possible and to avoid potential conflict as much as possible.'[64] When a potential conflict arises over the application by one State of its competition laws, policies and practices to matters related to the operation of an air transport agreement with another State, the States concerned should use their agreed bilateral process of consultation before taking any unilateral action which might aggravate the conflict.[65] The same principle, brought to a higher level, should also govern competition law enforcement within a plurilateral/multilateral framework.

5. Concluding Remarks

Today, more than in the past, multilateralism can't be reached through a 'big-bang approach' since the legacies of bilateralism are firmly rooted in the industry. A phased multilateralism, evolving from bilateralism via plurilateralism/regionalism, seems a more feasible and efficient solution. More urgent reforms are needed in the field of foreign investment restrictions under national laws and bilateral agreements. Faced by increasing costs and challenges,

58 Ibid.
59 Ibid.
60 Ibid, 18.
61 Ibid.
62 ICAO (n 44), Appendix 2, A2-1.
63 Ibid, guideline B.
64 Ibid, guideline C.
65 Ibid, guideline F.

airlines desperately need easier access to foreign capital. Alternative criteria, which do not unnecessarily harm airlines' economic needs, could prevent as well the emergence of 'flag of convenience', thus ensuring a safe and economical developments of international air services. At the same time, the more the international air transport is left to market forces, the more common efforts and common approaches are needed in the field of competition law, so as to avoid costly overlapping proceedings and prevent national protectionisms to be hidden behind competition law enforcements at the national/local level. In this regard, compliance with guidelines drafted both by ICAO and OECD, inspired by the fundamental principles of international and positive comity, is essential to ensure the required global level playing field in international air transport.

Using a statement of the Canadian delegate, John Baldwin, at the ICAO Commission on Multilateral Agreement on Commercial Rights:

'When we inch forward where we could step forward, we are not carrying out our obligations to the peoples of the world.'[66]

66 ICAO 'Records of the Commission on Multilateral Agreement on Commercial Rights' (1948) ICAO Doc 5230, 152.

Liability Impact of Automated Systems in Air Traffic Management

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Introduction

In the current operational scenario of Air Traffic Management (ATM), liability is mainly allocated to the operators who are responsible for air traffic control and air navigation (e.g. controllers and pilots).

However, this scenario will rapidly change: the SESAR concept of operations, in the context of the development of the Single European Sky,[1] is defining a new high-performance air traffic management system, involving the adoption of new technologies, devices, and high automation levels, which will enable the future development of air transport. Advances in automation and technology may bring about drastic changes from the legal and regulatory perspective, questioning the allocation of liability mainly to operators. Innovation and automation run almost parallel in ATM and the more innovation progresses, the more the theme of liability attribution will be crucial. The ALIAS project (Addressing Liability Impact of Automated Systems - recently started as part of SESAR Work Package E), addresses liability and automation in ATM, and more generally in complex socio-technical systems. It analyses technological developments and their impacts on ATM, assesses current responsibility regimes and proposes future developments.

Automated systems in ATM

The current legal framework in the ATM domain[2], despite involving the applicability of different models of liability (fault-liability, strict liability, organisational liability, design liability), does not contemplate the specific issues concerning the relationship between humans and automated systems which will become more and more relevant in the future of ATM: the issues, for instance, related to highly automated systems that perform actions without explicit human intervention; delegation procedures that dynamically transfer responsibility from controllers to pilots or to other technical systems; new allocations of tasks and roles related to the introduction of functional airspace blocks.

Such technological changes question the very notion of individual agency, and require a critical revision of the actual human contribution to the performance of ATM, and consequently of the criteria for the allocation of liability.

Several questions are prominent in this context. The first is that of the extent to which the use of new automatic tools may shift liability for accidents from operators to technology,

1 SESAR Consortium (2008). The Concept of Operations at a glance. (http://www.eurocontrol.int/sesar/gallery/content/public/docs/ConceptofOperations_02.pdf)

2 For a deeper analysis, see Diederiks-Verschoor I., Butler. M. (2006). An introduction to air law. Kluwer Law International, Alphen aan den Rijn; Van Antwerpen N. (2008) Cross-border provision of air navigation services with specific reference to Europe: safeguarding transparent lines of responsibility and liability. Kluwer Law International, Alphen aan den Rijn; M. Chatzipanagiotis. (2007). Liability aspects of air traffic services provision. Air and Space Law, 32, pp. 326–357; Leloudas G. (2009). Risk and Liability in Air Law. Informa Maritime and Transport, London.

that is from operators to manufacturers, organisations and system developers. In this respect, various issues could be analysed from the legal perspective: (a) balancing individual liability and organisational liability, (b) determining how different degrees of autonomy of agents and machines shape the liability of the different actors (operators, controllers, manufacturers designers), (c) analysing dynamic transfers of responsibility due to forthcoming operational concepts and procedures (e.g. business trajectories, self separations, etc.).

A second question concerns how to properly manage this shift in order to achieve an optimal allocation of liabilities. This will imply reconsidering the role of liability, not only as a tool to redistribute risks and allocate sanctions for errors and accidents, but also as a means to prevent those accidents and to increase levels of safety and performance in ATM, fostering the development of a safety culture within organizations[3]. Thus, it will be essential 1) to identify tasks and roles of operators (managers, ATCOs, pilots, etc) and automated tools; 2) to identify the expected level of performance for each task; 3) to consider different kinds of errors (unintentional rule violations, reckless behaviours, intentional violations); and 4) to define the appropriate legal and disciplinary sanctions and/or safety incentives in relation to different errors, risks and accidents[4]. A third question regards the extent to which the realisation of such a system requires a change in the law in force, the extent to which public regulation is required as opposed to self-regulation, coupled with contractual mechanisms.

In the Current Legal Framework of ATM, (See for example Annex 2 of the Chicago Convention, or article 21 of Montréal Convention), liability is designed to be invoked almost only as a consequence of the action (or inaction) of an aircraft's pilot or other human agents such as air traffic controllers.

Nevertheless, there can be little doubt that all the automated devices implemented in ATM in recent years have reduced the burden of the captain's (and controller's) responsibilities. This may be better clarified by examining the particular nature of these systems.

The concept of Autonomy

The salient feature of automated systems is the fact that they possess a certain degree of autonomy. In computer science, the concept of autonomy has been traditionally linked to the study and development of particular software artefacts called software agents. Wooldridge[5] gives the following definition of a software agent (SA):

An agent is a computer system that is situated in some environment, and that is capable of autonomous action in this environment in order to meet its design objectives.

Wooldridge pinpoints three crucial elements in the definition of an agent. First, an agent is related to a computer system. Second, this computer system can act autonomously. The

3 Reason J. (1998). Achieving a safe culture: theory and practice, Work & Stress, 12(3), pp. 293-306.
4 Calabresi G. (1970). The costs of accidents: A legal and economic analysis.Yale Univ Press.
5 Wooldridge, M. An Introduction to MultiAgent Systems, John Wiley & Sons Ltd, 2002.

notion of autonomy relates here to the principle that an agent can make decisions and take actions on its own, without the guidance of humans or other systems; roughly speaking, this means that control lies inside the agent and not outside. And third, an agent is designed for specific purposes known as design objectives.

The features of agents, as described by Woolridge, make them suitable for application in many industrial sectors where decisions have to be made quickly, and in volatile or conflictive environments where it is necessary to handle great complexity. Moreover, agents are scalable: they can work with a huge array of data sources and detailed information, taking into account the preferences of other agents and those of the entire organisation, and on this basis make the best resource-allocation decision. These properties meet most needs in the industrial and commercial sectors.

This has sparked a growing interest in the application of agent technologies, mainly in three sectors: telecommunications and networks, manufacturing, and transport.[6]

In all of these applications, software agents usually come as quite complex systems, so it is often difficult to predict and discuss their behaviour in terms of instructions or sets of connected programs. One common alternative when discussing agents is to conceive of them by using the mentalistic notions more typically applied to humans, such as knowledge, belief, and intention[7]. In fact, a user will normally have little knowledge of the internal functional mechanisms of an SA, and not even the programmer who built the SA will be able to view the SA's present and future behaviour as the execution of the computational processes which it consists of. The overall interpretation of the SA's behaviour will be based on the hypothesis that the SA is operating "rationally," by adopting determinations appropriate to the purposes that have been assigned to it, on the basis of the information available to it, in the context in which it is going to operate.

Liability and Automated Systems

Manufacturers of automated systems may be held liable for harm and damages caused by, or through, their products. Regarding product liability, a first distinction can be made between intentional torts (harms intentionally caused by an actor), negligence (when an actor omits to exercise reasonable care), and strict liability for defective products. The latter focuses on the product rather than on the conduct of the manufacturer, who may be held liable even in the absence of intent to injure or negligence[8].

An essential component of every automated system is the software. Therefore, from the legal

6 Agent-based applications have been developed for aerospace applications and training, process control, air-traffic control, traffic and transportation management, information filtering and gathering, business-process management, resource management, human-capital management, skills management, mobile workforce management, network management in utilities networks, user-interface and local-interaction management in telecommunication networks, schedule planning and optimisation in logistics and supply-chain management, control-system management in industrial plants (such as steelworks), defence, entertainment, and medical care.

7 See Dennett, D.C. The Intentional Stance. MIT Press, Cambridge, Mass. 1987.

8 Within the EU, the regime of strict liability for defective products was created by The Product Liability Directive, formally Council Directive 85/374/EEC of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products.

perspective, all the issues related to liability for software defects are relevant here[9]. As is well known, the use of software always implies the possibility of a failure, since not all software defects can be detected during the development and validation phases, and therefore it is impossible to guarantee that a piece of software will be absolutely error-free.

This is a crucial issue whenever software is the core component of a safety-critical system (such as those implemented in Air Traffic Management); that is, a system in which a malfunction could result in death, injury or illness, major economic loss, mission failure, environmental damage, or property damage. The cast of characters involved in the development, implementation and use of software makes the assignment of responsibility a problematic task, so it is often very difficult to pinpoint exactly what went wrong and who is responsible. For these reasons, software development contracts and licenses usually include strong liability limitations or even exemptions of the developers/providers for damages caused by their products. However, these limitations are not effective with respect to third parties. In these cases strict liability is usually imposed on the producer/manufacturer, in order to cover the necessity of assigning the risk to someone who can be considered to be in the best position to prevent defects in the products, and absorb or spread losses in cases in which a person might be held responsible, even if no negligent action was performed. However, it has been argued that this is an excessive burden on software producers, a burden which could hinder the development and deployment of useful programs.[10]

Of particular interest in this context are the "aeronautical charts" cases (Aetna Casualty and Surety Co. v. Jeppesen & Co[11]; Saloomey v. Jeppesen & Co[12]; Brocklesby v. United States[13]; Fluor Corp. v. Jeppesen & Co[14]), where the courts have routinely held that the charts are products for purposes of product liability and that strict liability can be applied. In these cases, the courts categorized information (provided in a chart, or by analogy in a software system) as a product, assuming that a nautical chart or an airline chart is similar to other instruments of navigation such as a compass or radar finder which, when defective, can prove to be dangerous. This provides at the same time the best analogy to software and the fullest analysis and supporting arguments for why software should be subjected to strict liability. Usually, to mitigate this approach the concept of misuse (contributory negligence) is also introduced, so that a user might be held partially or fully responsible whenever he/she uses the software in an incorrect or improper way, and as a consequence of a negligent action. Finally, another interesting issue concerns the analysis of those cases in which software is

9 For an overview of the evolution of different approaches to software liability, see Zollers F.E., McMullin A., Hurd S., and Shears P. (2004). No more soft landings for software: Liability for defects in an industry that has come of age. Santa Clara Computer and High Technology Law Journal, 21, pp. 745-782.

10 For an analysis of the relationship between Product liability and innovation, see Morrow R. (1994). Technology issues and product liability. Product liability and innovation: managing risk in an uncertain environment, pp 23 – 29.

11 Aetna Casualty & Surety Co. v. Jeppesen & Co., 642 F.2d 339, 342-43 (9th Cir.1981), available at: http://openjurist.org/642/f2d/339/aetna-casualty-and-surety-company-v-jeppesen-and-company

12 Saloomey v. Jeppesen & Co., 707 F.2d 671, 676-77 (2d Cir.1983), available at: http://openjurist.org/707/f2d/671/saloomey-v-jeppesen-and-co-c-halstead-f

13 Brocklesby v. United States, 767 F.2d 1288 (9th Cir.1985), 439, available at: http://openjurist.org/767/f2d/1288/brocklesby-v-united-states

14 Fluor Corp. v. Jeppesen & Co., 170 Cal.App.3d 468, 475, 216 Cal.Rptr. 68, 71 (1985)

supplied and used as a service rather than a product (product liability, and therefore strict liability, may not apply in the case of services[1]).

In addition, automatic and automated systems add further layers of complexity with respect to traditional software/hardware artefacts, since they may possess (in different degrees depending on the capabilities of each system) autonomous cognitive states and behaviours that are relevant from a legal perspective[2]. In these cases, the reason why the effects of what an automated system does will fall on the user is not that the user has wanted or has predicted its behaviour, but rather that the user has chosen to use the automated system as a cognitive tool and is committed to accepting the results of its cognitive activity. Thus, since the user intends to rely on the automated system's cognition, the fact that the user is responsible (in the sense that he will bear the rights and duties resulting from the automated system's activity) does not exclude, but rather presupposes, the legal relevance of the system's cognitive states and processes: the liability of the user would be more similar to the liability of the employer for the employee (vicarious liability) rather than the liability of a custodian. In fact, vicarious liability is not based upon the fact that the employer can foresee the behaviour of the employee, but rather on the fact that the employee may accomplish a tort when acting in the course of his employment.

Even further complexity may emerge when hybrid man-machine units are implemented: in these cases, agency does not pertain only to human or to machines, but to the hybrid itself[3], so that human machine interaction and trust play a decisive role in assessing and allocating liability. Under this perspective, a relevant (and still open) question is that of how to deal with cases in which, as in the Ueberlingen accident[4], conflicting information is provided to pilots by humans (controllers) and automated systems, and more generally what kind of priorities should be given to different signals, and when humans may override automatic devices.

ALIAS project and the Legal Case

The ALIAS project (Addressing Liability Impact of Automated Systems - recently started as part of SESAR Work Package E), will focus on the legal implications of automation, exploring the relation between automation and liability in ATM as fundamental issues in human-technology interaction.

The project presents a threefold objective: (1) investigate the topic of the relation between liability and automation at a wide spectrum, opening the frame of the problem to other domains

1 Brannigan V.M., Dayhoff R.E., Liability for Personal Injuries Caused by Defective Medical Computer Programs. American Journal of Law & Medicine 1981; 7(2):123-144

2 See Sartor G. (2009). Cognitive automata and the law: electronic contracting and the intentionality of software agents. Artificial Intelligence and Law, 17(4), pp. 253-290; and Bing J., Sartor G. (eds) (2003). The law of electronic agents, Unipubskriftserier, Oslo.

3 Teubner G. (2006). Rights of Non-humans? Electronic Agents and Animals as New Actors in Politics and Law. Journal of Law and Society, 33, pp. 497-521.

4 Bennett. S. (2004). The 1st July 2002 mid-air collision over Ueberlingen, Germany: a holistic analysis. Risk Management, pp 31–49.
For a complete description of the accident, see the EUROCONTROL Review of the BFU Ueberlingen Accident Report, available at: http://www.dcs.gla.ac.uk/~johnson/Eurocontrol/Ueberlingen/Ueberlingen_Final_Report.PDF

that possibly face similar issues (i.e. HealthCare, ICT, Train Transport, Navy, automotive industry, etc.); (2) build a multidisciplinary community of practice (Network of Legal Research in ATM) and stimulate the international debate around the theme; (3) provide a methodological tool to support the introduction of any technology in complex systems, particularly in ATM, ensuring that all the relevant legal aspects (liability in particular) are taken into consideration at the right stage of the design, development and deployment process.

To reach these goals, ALIAS addresses the issues of liability in ATM in the context of a socio-technical system, where the allocation of liabilities may be viewed as a governance-mechanism enabling the enhancement of the functioning of ATM. A socio-technical system (STS), is a system that involves a complex interaction between technical, social and organisational factors, as well as human factors[5]. In STSs, both the technical and the social aspects (the latter including humans, institutions and norms) are crucial to their design and functioning: at the core of such systems is a technical infrastructure, designed to serve a specific purpose, coupled with human operators that continuously monitor and modify its state during the operational process. Thus, a comprehensive theory of ATM – as a STS – will be developed, so that it will integrate together ontological and declarative models of ATM nature and structure, covering its technical, social and legal aspects.

On the basis of the ontological and declarative models developed in the project, ALIAS will provide a methodological tool, called the "Legal Case", built on the lines of the EUROCONTROL "Safety Case" and "Human Factors Case". The "Legal Case" will be of use to those who need to understand how to behave in order to prevent accidents and avoid liabilities, and also to those who need to make inquiries into compliance and liabilities. It will include recommendations and guidelines, as well as a software application for building visual argumentation graphs, in order to map and check the correct allocation of liability.

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Space

Tools for the interpretation of a Space Competence. Commission Communication COM (2011) 152

By Matxalen Sánchez Aranzamendi, ESPI Associate Fellow based in Brussels[1]

Introduction

The inclusion of the space competence in the Lisbon Treaty and its entry into force on 1 December 2009 was received by the space community not without agitation. In its much acclaimed exercise of creating a catalogue of competences the European Union explicitly collected in Article 189. TFEU a competence that it had been exercising under other titles already for more than two decades. The adoption of this article posed many questions concerning its nature of parallel competence, the coordination role of the EU, the extent of the non-harmonisation clause or the mention of the adoption of a space policy when there was already one in place.

As it has often been the case in the construction of the European Union, it was only time and political circumstances that would define the scope of this competence. It is already almost three years since the competence was adopted and the space field has been scenario to much discussion at policy level. The rolling out of strong space agendas by two Council Presidencies (the Spanish and Belgian presidencies) and a series of Space Councils have put on the table a number of priorities for space. Long standing issues such as a strategy for Africa, governance questions, the relevance of the security dimension or independent access to space have been put on the spotlight.

Despite the active political scenario little has been translated into actual legislation or institutional action that would have demarcated the European space competence[2]. However, on 4 April 2011 the European Commission published a Communication entitled "Towards a space strategy for the European Union that benefits its citizens"[3]. The Communication encapsulates many of the discussions carried out in the political arena, explains the position of the EU in the space scenario and regarding those different actions and has been considered as a way to legitimise EU's actions within the scope of Art 189 TFEU. In general, this communication provides for a key instrument in the interpretation of the scope of Article 189 TFEU.

The Communication in brief

Nature

COM (2011) 152 was published on 4 April 2011 after great expectation. In fact, as soon as

1 The views expressed in this article are those of the author and must not be regarded as representative of any official position of ESPI.
2 The most represenattive legislative action based on Article 189 TFEU was the adoption of Regulation (EU) No 911/2010 of the European Parliament and of the Council of 22 September 2010 on the European Earth monitoring programme (GMES) and its initial operations (2011 to 2013). (Gmes initial operations regulation).
3 Commission Communication "Towards a space strategy for the European Union that benefits its citizens." COM(2011)152 final.

Commissioner Tajani took office as Commissioner of Enterprise and Industry - therefore, in charge of space affairs – in 2010 he announced his will to have a new space policy. This move was met with reluctance in the European space community, as the European Space Policy had already been existing for over two years and counted with the agreement of ESA Member States (MS) and the EU. A multilateral action could have threatened the delicate balance struck by the governance triangle.

Months later the Commission issued this communication that in a rather uncompromising way was entitled "Towards a space strategy...". This wording clearly avoids the use of the word "policy" by bringing back a different concept, "strategy" that had already been mentioned by a Council Resolution inviting the European Commission to move towards a space strategy[4]. If the title of the Communication is far from clarifying the aim and place of this document in the constellation of space policy actions in Europe, the form of the document does not throw any light. In fact, we are faced with a Commission communication addressed to other institutions but does not bear any legislative text. This discards the possibility of legislative action based on the document. However, consideration by Parliament and Council could lead to further changes and an eventual new amended document that could serve as legitimate basis for further space action in the EU.

To certain extent, the eventual document could be regarded as a "EU space policy" providing for legitimate guidance at EU level. Actually, the Communication provides for the programmatic contents of the space competence as well as governance mechanisms and the tools to interpret the EU space competence.

Programmatic elements of the potential strategy

The Communication draws on the existing space policy and long standing development of space decision making in Europe to identify the programmatic actions or space flagships of a potential space strategy or ultimately of the EU space competence. Satellite Navigation, GMES, SSA and exploration form the body of flagships.

It is to be noted that the Communication does not list and describe these flagships as a set of self-standing programmes but as instruments to achieve the overarching policy priorities of the EU. In this sense, Satellite Navigation is important for its capacity to contribute to European competitiveness through the creation of wide downstream markets, GMESs is a key instrument to implement climate policy and to support European External Action, SSA forms part of the European security goals and explorations serves aims of competitiveness by focusing on development of strategic technologies.

4 Council Resolution of 16 November 2000 on a European Space Strategy (2000/C 371/02)

Despite full deployment and full operational capacity being still a priority for Satellite Navigation and Earth Observation, the Communication focuses on their downstream services and capacity for market generation. In this sense, the Communication highlights the strategic importance of independent Satellite Navigation and adds market potential estimations to support the role of Satellite Navigation in delivering the goals of the Europe 2020 strategy. The Communication already foresees the drafting of a proposal for legislation that will adapt the institutional framework for Galileo and EGNOS.

GMES occupies a prevailing position in the Communication. While the main priority is to ensure full deployment and operation of GMES by 2014, the Communication emphasises its importance to support other European action on areas such as humanitarian aid, development assistance and civil protection. According to the communication, GMES is bound to be the European infrastructure for the support of numerous public policies. GMES is conceived as more than a programme, its support to public policies makes it strategic. As a consequence, Commission underlines the importance of ensuring independence of GMES and continuity of services. Special attention is given to the climate change and security components of GMES.

Developments in security policy at EU level are reflected in the prominence that security enjoys in this Communication. "Communitarisation" of security finds also its reflection in the synergies between civilian and security uses of space assets. It is also reflected on the fact security purposes and considerations are introduced in an eminently civilian born competence such as space. The attention given to the "S" component of GMES by the Communication is a clear example of those synergies. The EU must take full advantage of the dual nature of GMES to fulfil EU security needs. To that aim the Communication openly mentions that GMES Sentinels should be equipped with enough resolution to fulfil those security aims in particular for the support of maritime surveillance, border control and External Action.

Space is also the instrument for security from space and for security in space. The Communication reminds the "EU engagement in security and defence" after the Lisbon Treaty and extends coordination in this area also to space. The Communication subscribes the words of the Space Council whereby the European Commission is invited "to explore current and future capability needs for crisis management through cost-effective access to robust, secure and reactive space assets and services [...] taking full advantage of dual-use synergies as appropriate." The Communication describes that the EU must take initiative in the context of the "Common Security and Defence Policy to coordinate national facilities with agreement of Member States and develop own capacities where needed in order to ensure independence and continuity of missions. Independent access to space services on a sustainable manner and the strategic value of space assets are reiterated all over the strategy, as a consequence, it is not surprising that the potential strategy also should seek an independent Space Situ-

ational Awareness (SSA) capacity. The latter being one of the programmatic elements.

The set of flagships completing the programmatic part of the Communication closes up with exploration. Exploration has been closely linked to technological excellence as it provides for the possibility to develop critical technologies. However, the Communication takes one step further and underlines the political dimension of space exploration that goes beyond the issues inherent in research and development. Exploration is needed to attain independent access to space by developing independent space flight capabilities. The take up of exploration by the EU would involve the linkage of a too piecemeal activity with economic and societal needs to release the full potential of an area that does not perform to its full potential currently.

Structural elements

The communication deals also with the mechanisms to make the strategy work, it deals with industrial policy disguised in the title of competitiveness and dedicates a title to governance. Both industrial policy and governance contain elements that represent strong a strong positioning in these two key and highly controversial issues.

Article 189 TFEU establishes that EU's action under this competence must serve the purpose of promoting industrial competitiveness. In this sense the 2010 Commission Communication on an Integrated Industrial Policy[5] singles out space as one of the specific areas for targeted approach. The Integrated Industrial Policy emphasises the economic, societal and strategic value of space industry and elaborates on the different space applications to generate a competitive space industry. It also sets two action items for the Commission: to propose measures in 2011 to implement the priorities of the Space policy based on Article 189 TFEU and to pursue a space industrial policy developed in close collaboration with the European Space Agency and Member States.

In tune with the integrated industrial policy the Communication sets the main goals of the space industrial policy but it does not adopt any of the measures mentioned by the integrated industrial policy. Among the issues to be tackled by the industrial policy are the high concentration of the space industry and little representation of SMEs. On the other hand, European industry seeks a competitive position on the world stage and a level playing field. The main goal of the industrial should be the achievement of a balanced development of the European space industry, seeking both a competitive scenario for SMEs and a greater competitiveness on the world stage. Industrial policy should also put special attention in achieving non-dependence for strategic sub-sectors.

5 Commission Communication on "An Integrated Industrial Policy for the Globalisation Era Putting Competitiveness and Sustainability at Centre Stage". COM (2010) 614

The Communication calls for a coordinated action between EU-ESA and the Member States in the use of their financial mechanisms. It also calls for the definition of most appropriate procurement procedures and a better use of regulatory measures to define the most appropriate procurement procedures for the competitiveness of each sub-sector and achieving a competitive position at the global level. This indicates a flexibility of the community approach and an understanding of the particular needs of the space industry.

This message contrasts with the message on governance whereby the Communication calls for the gradual adaptation of ESA's so that maximum benefit can be achieved from the two organisations. The Communication depicts a clear scenario where it defines the role of the EU towards Member States. In this sense the EU is to federate users needs while ESA would develop the technical base for both ESA and EU funded programmes, the operational base for Galileo and Gmes would belong to EUMETSAT. The view of the Commission according to this communication is that ESA should develop structures geared solely towards EU programmes.

Regarding Member States, the Communication defines the role of the EU as the level to foster consistency and political objectives as well as synergies between space policy and other policies. In brief, the EU plays the role of coordinator.

INTERPRETING THE SPACE COMPETENCE IN THE LIGHT OF THE COMMUNICATION

The main messages of the Communication

The capacity of this Commission communication to define the scope of the EU space competence as laid down by Article 189 TFEU is yet to be seen and will depend on the authority attributed by European institutions and national authorities to it. On the other hand, the goals expressed in this communication build on the current needs of European Policy as expressed by space actors in the last decade[6]. In this sense, the potential strategy depicted by the Communication may not be suited as much as to define a competence. However, the Communication does provide a set of grounds for moving towards a definition of roles and goals.

Moreover, the communication provides for a wider vision of the role of space and its objectives in the context of European integration. The raison d'être of the EU space competence is the strategic nature of space. Space represents fundamental infrastructures to sustain public policies and the well being of its citizens. For this strategic nature Europe must be able to fully rely on its space infrastructures independently of other space powers. As a consequence, independent access to space and security of assets are essential to European action in the space field. The Communication identifies space applications and industrial policy as the

6 See in particular 5th Space Council Resolution 2008

instruments to develop those infrastructures and generate a competitive industrial basis to achieve independence. Space exploration is essential to ensure access to space and SSA is strategic to secure those assets.

The other face of the strategic value of space lies on its dual-use nature and the utility of space technologies for security and defence. Defence is no longer a taboo in EU politics after the Lisbon Treaty and Security has been brought closer to the Common priorities. The Communication makes full use of this approach and establishes common goals for the role of space in Security and Defence while it defines the role of the EU in security related space issues.

The strategic nature of space and the place that it occupies among European policy priorities forms the spirit of the space competence that can be held permanently through time.

Elements for interpretation of Article 189 TFEU

In addition to the introduction of the overarching goal of security and strategic spirit of space, the Communication encapsulates concrete action areas that fill Article 189 TFEU with content and constitutes the background for answering the questions regarding the parallel nature of the competence, the non-harmonisation clause, and the coordination tasks or the EU. In addition, it addresses relations with ESA.

Article 189 TFEU establishes that the Union shall draw up a space policy. Paragraph 2 of this article envisages the adoption of a space programme. As mentioned before, there is already a European Space Policy that enjoys the support of the main actors of the governance triangle. However, this Communication describes a whole set of programmatic actions that, in substance, fulfil the requirements of a Space Policy and lie guidelines for a space programme.

Article 189.1 TFEU endows the EU with the capacity to coordinate efforts for exploration and exploitation of space. In fact, in its explanation of governance organisation, the Communication states that the EU must coordinate the action of its MS in order to avoid overlaps and to ensure alignment of policies. This coordination is further extended to security where the EU is to play the role of coordination of national initiatives and provide for common solutions where needed. The latter is a call to the subsidiary principle that would apply both to civilian and military affairs in the field of space. The creation of a programme on the basis of this reasoning would be fully compatible with the non-harmonisation clause and would explain the parallel nature of the competence. The GMES regulation is a good example of this and sets precedence for future regulation predicted under Galileo.

Two key elements of the Communication are industrial policy and governance. Article 189.1 TFEU establishes that space policy should serve promotion of scientific and technical progress

and industrial competitiveness. The Communication tackles competitiveness by addressing industrial policy with goals of opening opportunities to a wider industrial base and adapting procurement rules and other regulations. Finally, relations with ESA are granted attention by depicting the task share between the three edges of the governance triangle.

In conclusion, the Commission Communication "Towards a space strategy for the European Union that benefits its citizens" resembles a policy that could not be named as such but which is instrumental on defining a space competence that advances at slow pace.

Case Law Commentary

"THE COMMISSION DECISION REGARDING STATE AID IN GROUND-HANDLING ACTIVITIES" (2011/C 29/07)

Orsola Zane

Following the complaint dated 13 July 2006, the Commission opened a detailed investigation into the presumed aid granted to a company (hereinafter also referred to as Sea Handling Spa), which carries out ground-handling activities at Milan Malpensa and Linate airports.

According to the information submitted to the Commission by the complainant, between 2001 and 2005 Sea Handling Spa (which belongs to another company hereinafter called SEA Spa – which is almost entirely owned by the public authorities) received from SEA Spa grants intended to cover the operating losses that it had incurred.

It seems that the Municipality of Milan played an active role in guaranteeing final balance and levels of employment in Sea Handling Spa by making undertakings in its own name.

With regard to the existence of aid, Italian authorities dispute first that the financial resources transferred by SEA To Sea Handling to absorb the latter's losses can be classified as "State resources" within the meaning of article 107 TFEU and, in this way, they could be regarded as imputable to the State.

The Commission held that the coverage of S.H.'s losses does not reflect the behaviour of a well-informed shareholder by Sea and therefore favours Sea Handling within the meaning of article 107(1) of the TFEU.

In fact, aid granted by a Member State or through State resources isn't allowed, if it is incompatible with the common market and causes a distortion of competition.

The Airline Guidelines determine whether and under what conditions the public financing of airport services will be assessed by the Commission, obviously having regard to the rules and procedures on State aid.

With regard to grants for airport services, the Airline Guidelines make reference to the Ground-Handling Directive 96/67/EC, which provides that, above the threshold of two million passengers, ground-handling services must be self financing and must not be cross-subsidised by the airport's other commercial revenue or by public resources granted to it as airport authority or operator of a service of general economic interest.

In conclusion, the subsidising of these activities by public authorities would contradict the objectives set by the above Directive and could therefore have adverse impact on the opening of this market to competition. However, the Commission expressed its doubts on the compatibility of the measures in questions with the State aid provisions and is currently awaiting to receive additional information on the subject.

THE REINFORCEMENT OF AIRLINE PASSENGERS' RIGHTS: AN ANALYSIS OF THE LEGAL CASES BEFORE THE ECJ FOCUSING ON THE LINKAGE PROBLEM BETWEEN REGULATION (EC) NO 261/2004 AND THE MONTREAL CONVENTION

Alessandra Laconi

Ten cases concerning the rights of airline passengers are currently pending before the European Court of Justice (cases C-83/10, C-581/10, C-629/10, C-11/11, C-12/11, C-22/11, C-1391/11, C-255/11, C-315/11, C-410/11) and in addition a judgment was handed down on 12 May 2011 (case C- 294/10).

This means that passengers no longer hesitate to take legal action to assert their rights and it proves that Regulation (EC) No 261/2004, which defined those rights, is not sufficiently clear.

All the mentioned cases involve compensation for delay or cancellation and the underlying theme of all of them is the connection between the Montreal Convention and Regulation (EC) No 261/2004.

In the Sturgeon case of November 2009 (joined cases C-402/07 and C-432/07) the ECJ extended the right to compensation for cancellation provided by Regulation (EC) No 261/2004 to all cases of delay in excess of three hours.

Compensation in these cases is fixed at a minimum of € 250 whatever the amount paid for the ticket, but it is not therefore intended to compensate the losses actually sustained by passengers on account of delays.

The Montreal Convention specifically excludes compensation other than that intended to compensate for losses sustained.

Can the Sturgeon case be considered as a precedent set by the ECJ about the conflict with the Montreal Convention?

The issue is currently the subject of three cases (C-581/10, C-629/10 and C-255/10) brought by European airlines such as British Airways and Lufthansa.

A second linkage problem can be found as article 19 of the Montreal Convention treats the grounds for exoneration for delays as follows: "[...] the carrier shall not be liable for damage occasioned by delay if it proves that it and its servants and agents took all measures that could reasonably be required to avoid the damage or that it was impossible for it or them to take such measures".

Such grounds for exoneration for delays are indeed interpreted more strictly in Europe than in the rest of the world.

In the Wallentin-Hermann case of December 2008 (case C-549/07) the ECJ decided that not all extraordinary circumstances are grounds for exoneration. To obtain relief, an airline must prove that it would clearly not have been able to prevent the extraordinary circumstances even if it had deployed all its resources in terms of staff or equipment and the financial means at its disposal unless it had made intolerable sacrifices in the light of the capacities of its undertaking and the relevant time.

In the recent Eglitis judgment of May 2011 (case C-294/10) the ECJ was even stricter (see The Aviation & Space Journal No 2/2011).

By its questions the Latvian court asked, in essence, whether article 5(3) of Regulation No 261/2004 must be interpreted in such a way that an air carrier has an obligation, in respect of the reasonable measures that it is required to implement in order to guard against extraordinary circumstances, to organise its resources in good time in order to provide a certain minimum 'reserve time' after the scheduled departure time, so as to be able, if possible, to operate the flight after the extraordinary circumstances have come to an end. It asked, in particular, whether that 'reserve time' may be determined with reference to Article 6(1) of Regulation No 261/2004.

The ECJ underlined that under article 5(3) of Regulation No 261/2004, by way of exception to the provisions of article 5(1), the air carrier is released from one of its obligations if it can prove that the cancellation is caused by extraordinary circumstances which could not have been avoided even if all reasonable measures had been taken.

Thus, in future carriers must organise their resources in good time to be able to ensure a certain margin of time to be able to operate the flight once the extraordinary circumstances have come to an end.

In addition, in their planning they must take account of delays following the initial delay caused by the extraordinary circumstances. The ECJ considered in fact these delays to be secondary risks which are foreseeable and calculable.

After the crisis caused by the Icelandic volcano in April 2010, the European Commission gave further thought to several contentious points in Regulation (EC) 261/2004, such as the interpretation of "extraordinary circumstances", re-routeing and the proportionality of compensation.

In the Communication COM(2011)174 the Commission acknowledged that passengers and carriers both had an interest in greater legal certainty and in a more standardized interpretation of the regulation.

Nevertheless, the reinforcement of passengers' rights remains the Commission's main concern.

It is probable that the ECJ will maintain its pro-consumer interpretation of Regulation (EC) 261/2004 in its forthcoming judgments.

That approach can already be found in the opinion of Advocate General Eleanor Sharpston in the Sousa Rodriguez case (C-83/10).

According to the Advocate General, in addition to compensation of € 250 for cancellation or delay in excess of three hours, passengers should receive further compensation covering material and non material damage which they have sustained.

The reasoning is based on article 12 of the Regulation (EC) 261/2004 which states "This Regulation shall apply without a prejudice to a passenger's rights to further compensation".

The problem of the linkage of this compensation with the Montreal Convention was not examined by the Advocate General.

The next months will thus be decisive for airline passengers' rights, in view of the several cases pending before the ECJ, but also the more pro-consumer view of the European Commission and of the more active stance of national consumer's associations.

Miscellaneous Material of Interest

US CONGRESS PROHIBITS AMERICAN AIRLINES FROM PARTICIPATING TO THE EU EMISSION TRADING SCHEME

Francesco Alongi

During the summer, opposition to the inclusion of the aviation industry in the EU Emission Trading Scheme (ETS) has been mounting, as the industry awaits the outcome of the ATA case.

In a few weeks the European Court of Justice is expected to rule on the challenge brought by the Air Transport Association of America and by three American airlines, American, Continental and United, against the inclusion of the aviation industry in the ETS.

On 20th July, ten US Congressmen submitted to the House of Representatives a draft bill which prohibits operators of civil aircraft of the United States from participating in the ETS.

The proponents of the bill argue that the ETS constitutes an overt violation of customary international law, of the Chicago Convention of 1994 and of the EU-US Air Transport Agreement, since it requires US airlines to pay for emission allowances for aircraft operations within the EU, over non-EU territory and in international airspace for flights serving the European Union.

Pursuant to the "European Union Emissions Trading Scheme Prohibition Act of 2011", the US Secretary of Transportation shall moreover take all necessary actions to ensure that operators of civil aircraft of the US are held harmless from any emission trading scheme unilaterally established by the EU.

On 27th July, the Latin American and Caribbean Air Transport Association (ALTA) publicly stated that "ALTA wholly agrees with the position of the US Transportation Committee [of the Congress] and reiterates its call to the authorities in Latin America and the Caribbean to also formally oppose any participation by international carriers" in a scheme which they consider "an illegal, flawed and unjust attempt to force the aviation industry to concede to unilateral and biased measures to the benefit of European carriers".

This resolution of the US Congress is only the latest of the challenges brought (in and out of Court) against the implementation of the ETS, and comes only a few weeks after Chinese airlines publicly condemned the scheme, threatening litigation.

The outcry over the scheme has therefore put the spotlight on the European Court of Justice, which will have to rule on the lawfulness of a scheme which is at the very heart of EU environmental policy and which will affect like no other piece of legislation before the aviation industry.