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The Issue's Contributors:
Dejian Kong
Qihuai Zhang
Ridha Aditya Nugraha
Jinyoung Choi
Barry Humphreys
Hamza Hameed
Najah Zeilah
Alessandra Laconi
Alfredo Roma
Isabella Colucci

CONTENTS

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Civil Procedural Issues in the Lawsuits of MH370 in China: Choice of Law and Primary Litigation Participants[1]

Dejian Kong*
*Qihuai Zhang***

Abstract

In MH370 cases accepted by Beijing Rail Transportation Court, Montreal Convention is the applicable law in order of priority. However, legal issues which are not regulated by international conventions concluded by China, have to apply national law following Chinese rule of conflict. Whether the basis of claim for compensation is contractual or tort liability makes difference to the application of law in Chinese court. All the parties being supported by the missing passengers in law and close relatives of the missing passengers are the qualified joint plaintiffs, but only if the special procedure of death declaration is completed before MH370 lawsuits. As operating carrier of MH370, Malaysia Airlines is the suitable defendant, but the existence of other defendants depends on the causes of accident further released.

Introduction

Beijing Rail Transportation Court has accepted more than 30 actions after the disappearance of MH370 on 8 March 2014 (hereinafter referred to as "MH370 cases"). As a further study on civil liability issues in MH370 cases from Chinese law perspective, this article makes an initial analysis on the issues about *Choice of Law* and *Primary Litigation Participants*. For the basic information of MH370 and the discussion on *Jurisdiction* and *Limitation of Action*, please refer to *Dejian Kong & Qihuai Zhang, Civil Procedural Issues in the Lawsuits of MH370 in China: Jurisdiction and Limitation of Action, XV (1) The Aviation & Space Journal 2016*.

Choice of Law in the case of MH370

1. International Conventions

It is quite complicated to deal with the issue of choice of law in the case involving foreign elements, where the Court has to make an appropriate choice between international conventions and national law, in particular under Chinese legislation. Although China has relevant provisions on air carrier's liability, such as Article 71 of *Tort Law of China*, and Articles 124 to 136 of *Civil Aviation Law of China*, international conventions concluded or acceded to by China shall prevail over those domestic provisions, according to Article 142 of *General Principles of the Civil Law*.

*PhD Candidate, International Institute of Air and Space Law, Leiden University, the Netherlands.
**Director, Beijing LanPeng Law Firm, P. R. China; Secretary-General, the Aviation Law Research Institute of Beijing Aviation Law Society; Guest Professor, the Civil Aviation University of China.

Article 1 of Montreal Convention (hereinafter referred to as "MC") clears that the convention applies to "all international carriage of persons, baggage or cargo performed by aircraft for reward" and "gratuitous carriage by aircraft performed by an air transport undertaking". In the case of MH370, it is obvious that the flight was commercial and international and supposed to fly from Malaysia to China. This makes MH370 Lawsuits falling into the application of MC. However, it cannot be said that the applicable laws are limited to MC in MH370 cases under Chinese law. What MC represents is only the prior application effect, and where the application of MC is not involved, the Warsaw Convention (hereinafter referred to as "WC") and related protocols or other international conventions and national law, in particular Chinese private international law, will be applied consequently.

2. Chinese Legislation

MC and WC unify various rules on relationship of rights and obligations between the passenger, shippers and carriers, in particular regarding the limit of liability, the jurisdiction and other issues, but there are no indications on the basis of liability, the calculation of compensation[2], and specific civil procedure (see section 4, Article 33 of MC); all of them are hence left to be decided by national law, which could also be proved from the term "certain rules" in the titles of the two conventions.

Although it is true that MH370 cases have been registered by Chinese Court, it does not mean those cases have to apply Chinese legal documents. For the issues untouched neither by MC nor by other treaties, the Court has to decide whether to apply Chinese law or foreign law, through Chinese rules on *Choice of Law* or *private international law*.

General rules on the application of laws concerning foreign-related civil relations are regulated by *Law of the People's Republic of China on Choice of Law for Foreign-related Civil Relationships* (hereinafter referred to as "Law on Choice of Law of China"), and Chapter 6 thereof clarifies the rule on *Creditor's Rights*, where civil liability issues are included. However, *Law on Choice of Law of China* distinguishes the lawsuit based on the breach of contract and the lawsuit based on tort. For the former, the choice of law mainly relies on agreement supplemented by laws which have the closest relationship with the contract, and this shares the same method regulated by Article 188 of *Civil Aviation Law of China*; for the latter, the following rules under Articles 41 and 44 of *Law on Choice of Law of China* are applied: "The laws of the place of tort shall apply to liability for tort, but if the parties have a mutual habitual residence, the laws at the mutual habitual residence shall apply. If the parties choose the applicable laws by agreement after any tort takes place, the agreement shall prevail." In addition, Chinese Court has to make a judgement on the nature of legal basis of the plaintiff's claim according to the Chinese *Provisions on the Cause of Action of Civil Cases* when the Court decides to accept the claim, so as to help the parties to make a precise choice on the method to perform the right of action, to figure out case facts, and to apply the law appropriately. Therefore, before the applicable laws were determined, the nature of legal basis of the claim for compensation in aviation accidents must be clarified, i.e. whether MH370 cases belong to the dispute based on tort or contract.

According to Article 302 and 303 of *Contract Law of China*, the carrier shall be liable for damages on the passenger's health and property in the course of carriage, unless exceptions exist.

Furthermore, even if the legal basis of civil liability of carrier has not been indicated by *Civil Aviation Law of China*, both domestic and international air transport provisions mentioned in that law refer to the air transport contract, according to Article 107 thereof. Therefore, it can be concluded that according to Chinese law carrier's civil liability constitutes contract liability.

According to Article 71 of *Tort Law of China*, "where a civil aircraft causes any harm to persons, the operator of the civil aircraft shall assume the tort liability, unless it can prove that the harm is caused by the victim intentionally." The above clause illustrates that when a carrier causes damages to a passenger, the carrier should bear civil liability in tort, specifically *Liability for Ultra hazardous Activity* (Chapter IX of *Tort Law of China*). Moreover, if the defects of the aircraft or its engines or other components cause the accident, the producers or suppliers thereof bear the product liability, according to Article 41 and 42 of *Tort Law of China*.

Therefore, MH370 cases are covered by both tort law and contract law under Chinese national law, which is actually called *coincide liability of torts and breach of contract*. According to Article 122 of *Contract Law of China*, the victims are entitled to claim for contract liability based on *Contract Law of China*, or to claim on the assumption of infringement on ultra hazardous activity or the manufacture of aviation products according to other law, namely, *Tort Law of China* as mentioned above, against the carrier. As the determination of the *cause of action* can influence the implementation of the *right of action* of the parties and the civil procedure of the case, in Chinese legal practices the right to set down the *cause of action* lies jointly in the Court and the parties. However, in the situation of concurrence of claims, the Court should decide the *cause of action* mainly based on the independent choice made by the claimant. Furthermore, following the *non bis in idem* principle, the claimant can only select one in the above two legal bases, as repetitive suits is not allowed in Chinese law. However, that choice could be changed by the claimant before the commencement of the hearing in the trial of first instance.

In MH370 cases, whether tort law or contract law is applicable depends on the legal basis selected by the claimants[3]: (i) If the claim is based on contract law, the case would firstly apply the law through the agreed clauses on *Choice of Law* in the contract; if no agreement thereof was concluded in advance, the case would apply the laws which have the closest relation with the contract (Article 41 of *Law on Choice of Law of China*). However, what is the "closest relation" has to be judged case by case. (ii) If the claim is fully or partly based on product liability, the law at the habitual residence of the infringed, that is the Chinese law, shall apply, or the infringed could also choose the applicable law at the main business place of the infringer or at the place of the infringement (Article 45 of *Law on Choice of Law of China*). (iii) If the claim is based on general tort liability, the law at the place of tort shall apply (Article 44 of *Law on Choice of Law of China*), which has to wait for the future released investigation on the location of crash of MH370, but agreement on *Choice of Law* shall prevail if there is any. If it is finally proved that MH370 crashed on the high seas, the Beijing Rail Transportation Court, could take reference to the general principles on international law, such as the law where the aircraft is registered, or the principle of protecting the interest of the victims, to determine the applicable law, as no regulation on this case exists currently in China.

3. Chinese law v. Montreal Convention

Based on the above analysis, the claimants in MH370 cases have to make a choice between the suit based on tort law or contract law, which raises the question whether MC could be applied as tort law or contract law, or both. Actually, there are certain points of difference on the legal basis of air carrier's liability and related civil procedures between different States' national legislations, in particular between *civil law system* and *common law system*. Both MC and WC do not involve themselves to the struggle on liability coincidence, but leave this question open to national laws.

According to Article 29 of MC, claims for compensation in air transportation, however founded whether in contract or in tort or otherwise, can only be brought subject to the conditions and limits of liability set out in punitive, exemplary or any other non-compensatory damages shall not be recoverable. In MH370 cases, no matter whether the claim is based on tort law or contract law, the issues on conditions and limitation of liability shall meet the provisions of MC, which also proves that national legislation could not make the influence on the application of MC as long as that State is a member State. At least for the issues on conditions and limitation of liability, MC shall prevail.

Therefore, here could be concluded that the laws applicable to MH370 cases are firstly the MC, and then the WC; if there are no relevant clauses in the above conventions, the *Law on Choice of Law of China* shall apply to determine the detailed applicable national laws, and the priority of those domestic law shall meet the rules in *Legislation Law of China*, which usually refer to the following two principles: (i) priority of new law over old law, and (ii) priority of specific law over general law.

Primary Litigation Participants in MH370 cases

1. Claimants

MH370 was officially declared as an accident by Malaysian government on 29 January 2015, and all passengers and crew members were presumed dead. In the case the passengers are dead, the question who is entitled to claim for compensation is not clarified by the MC, and therefore Chinese national law would apply to define the qualified claimants in MH370 cases. Unfortunately, neither the specific law in the aviation sector (*Civil Aviation Law of China*) nor the general law on civil procedure (*Civil Procedure Law of China*) define the specific scope of the qualified claimants. However, according to Article 1 of *Interpretation of the Supreme People's Court of Some Issues concerning the Application of Law for the Trial of Cases on Compensation for Personal Injury* (hereinafter referred as "Interpretations on Compensation for Personal Injury") in a lawsuit arising from a personal injury, the parties which can claim for compensation include the victim and a person in need of support and upbringing for which the victim is obligated in accordance with law, or a close relative of the deceased passenger. As victims, the passengers have been presumed dead in MH370 cases, so the possible claimants remain (i) Parties being supported by the missing passenger in law, and (ii) close relatives of the missing passenger, which may coincide in some cases.

A. Parties being supported by the missing passenger in law

According to Article 29 of *Law on Choice of Law of China*, "the laws in favour of protecting the rights and interests of the persons being supported by laws at the *habitual residence, of the State of nationality* or *at the place of the main properties of one party* shall apply." Article 148 of *General Principles of the Civil Law* reads as follows: "Support shall be bound by the Law of the country to which is most closely connected", but according to the priority of new law over old law, *Law on Choice of Law of China* shall prevail. However, no matter which law is applicable in MH370 cases, to define the parties being supported by the missing passenger shall apparently apply national law of China, because most the aforementioned places are located in China.

Generally speaking, there are two different methods in China to define the scope of the parties being supported by the missing passenger, namely, (i) theory of legal support, and (ii) theory of actual support. The former concerns that *the parties being supported* refers to those parties who shall be supported *in law*, regardless whether the deceased person was performing that legal duty or not; the latter points *the parties being supported* to the parties who were being supported by the deceased person, regardless of whether that deceased person was statutorily obligated to do so. The Chinese judicial practices adopt the former in most cases.

According to Articles 20 and 29 of *Marriage Law of* China, *the parties being supported* include: (i) the spouse, (ii) younger brothers and sisters who are minors in the case that their parents have died or have no ability to support them, if the victim had that ability, and (iii) elder brothers and sisters who have no ability to work and no other source of income at the same time, if the victim was raised by them and the victim has that ability to offer support. In addition, Article 28 of *Interpretations on Compensation for Personal Injury* defines *the parties being supported* as "a minor to whom the victim is lawfully obligated for support and raise, or an adult close relative of the victim, who has lost the ability to work and has no other source of income." Even if the above words used by each documents are not identical, both of them adopt actually the theory of legal support. In addition, what needs to be addressed here is that the time point to judge the legal duty for support shall be the day of death of the victim, rather than the trial date. Therefore, here could be concluded that the qualified claimants in MH370 cases refer to the minors and adults that were supported by the missing passengers according to the statutory duty at the date of death.

B. Close relatives of the missing passenger

The scope of *close relatives of* the victim in a civil case is regulated clearly by Article 12 of *the Opinions of the Supreme People's Court on Issues concerning the Implementation of the General Principles of the Civil Law of the People's Republic of China*, which mainly includes: (i) spouse, (ii) parents, (iii) children, (iv) brothers and sisters, (v) paternal or maternal grandparents, (vi) grandchildren, and maternal grandchildren. Although Chinese law does not recognize the civil legal status of *foetus*, if the spouse of the missing passenger was pregnant when the missing passenger was declared legally dead, the right for claim for compensation should be protected by law after the foetus is given birth and get the appropriate capacity for civil rights. If the trial happened before the birth of the foetus, the Court shall support the claim for compensation for that foetus by his or her mother.

C. Is Special Procedure of Death Declaration required?

Based on the above discussion, the precondition for submitting the claim for compensation by the qualified claimants in MH370 cases is that the missing passengers have been declared dead according to the relevant law. Under Chinese law, the status of death could be identified either as *natural death* or as *legal death*. The former is death certified by a medical doctor, which is the normal case; the latter is the presumed death by law, when the natural person is missing for a certain period of time, but the biological death remains unknown. The purpose of the *declaration of death* regime is to end the unstable legal relationships of the missing person with others, so as to protect the interests of parties involved. Specific to MH370 cases, whether the missing passengers are biologically died is still a mystery to the public, as no bodies (remains) have been found so far. Hence, it is necessary to ensure the civil rights of the missing passengers' relatives are recognized through the *fictitious death* declared by law as soon as possible.

Current international conventions in the aviation sector do not include rules on declaration of missing persons or declaration of their death; it thus has to rely on Chinese choice of law. Under Article 13 of *Law on Choice of Law of China*, the matters of the declaration of missing or declaration of death shall apply the laws at the habitual residence of a natural person. By the information publicly released so far on MH370, it is reasonable to presume that most of the missing passengers in MH370 cases have their habitual residence in China, and therefore it is still Chinese national law that should be applied. According to Article 23 of *General Principles of the Civil Law* and Article 185 of *Civil Procedure Law of China*, the interested party could submit the application to *the people's Court* for declaration of death of another citizen if his/her missing status has lasted for four years, or for two years after the date of an accident in which he/she was involved, or if there is no possibility to survive for that citizen in an accident according to a certificate issued by *a relevant authority*. Specific to MH370 cases, on the one hand, the interested person, including the relatives of the missing passenger and the potential liable party, could submit that application for declaration of death of the missing passenger to the Court after 8 March 2016 when the two-years period required in an accident was reached; on the other hand, *a relevant authority* could issue a certificate according Article 184 of *Civil Procedure Law of China* to prove that the missing passengers could not have survived after the missing of MH370 flight.

However, whether the legal effect of the declaration of death made by the Malaysian government on 29 January 2015 is accepted by Chinese Courts remains doubtful. First of all, Article 23 of *General Principles of the Civil Law* and Article 185 of *Civil Procedure Law of China* clearly require that the declaration of death has to be made by the *people's Court* where habitual place was located; in other words, *administrative* agencies and *foreign* Court do not have that right. Secondly, even if it is sure that the missing passengers cannot have survived, *a relevant authority* (see above) is supposed to the *Chinese* agency such as police department or the department for civil affairs, rather than the *foreign* sovereign power (Malaysian government or its agencies), whose declaration have no legal effect in China, unless it could be proved that the Chinese government clearly accepts or recognizes the legal effect of that declaration.

In conclusion, although it is clarified by the *Supreme People's Court of China* that the compensation in the case of air crash is provided for the relatives of the deceased passenger rather than the deceased passenger themselves[4], the case must

be established on the fact of the *death* of the missing passengers, otherwise there would be no so-called relatives of the *deceased* person. Therefore, the relatives of the missing passengers of MH370 are not qualified claimants until the special procedure of declaration of death of those passengers have been concluded by the Chinese relevant Court(s). Outside the MH370 cases already accepted by Beijing Rail Transportation Court, all other relatives of the missing passengers have the right to apply for the declaration of death without orders of priority, and no body shall oppose to it. When the above happens during the trial of MH370 cases, the Court shall suspend the action according to Item 5, Article 150 of *Civil Procedure Law of China*, which reads as follows: "The action must depend on the results of another case which has not been concluded", and resume the trial after the special procedure of declaration of death is terminated.

D. Joint Claimants

As discussed above, all the parties being supported by the missing passenger in law and close relatives of the missing passenger could be the qualified claimants after the declaration of death. When there are more than one qualified claimants, the legal action constitutes inherent indispensable joint action under Chinese law, which means all the claims submitted based on the same missing passenger have to be combined into one trial by the Court. Current Chinese legislations only regulates such necessary joint actions as the lawsuit by partners and succession cases, which do not clear the rules on the necessary joint action in the case of compensation for death damages. However, the former could work as the reference for the latter. Specific to MH370 cases, the Court shall notify all other claimants to participate in the action as the co-claimants if the action is instituted only by part of close relatives and parties being supported by the missing passenger in law; however, if a notified claimant has expressly renounced its substantial rights, it is permitted to not add that party; if one is not willing to participate in the action but does not clearly renounce its substantial rights, the Court shall still take him/her as one of co-claimants, but the civil procedure does not stop just because no-show of that party (Article 70 and 74 of *Civil Procedure Law of China*). Under Chinese law each claimant is the independent litigant in such joint actions as MH370 cases, and it has nothing to do with the civil procedure of MH370 cases whether those co-claimants hire the same or different lawyers.

2. Defendants

The legal relationships in MH370 cases are quit complicated, and the scope of possible defendants in each MH370 case depends on the way to conclude the transportation contract. However, the possible defendants generally include the carrier, both contracting carriers and the actual carrier, or the insurers. If the accident is caused by defective design or manufacture of the aircraft or its components, the supplier thereof may be brought to the Court by the claimants.

A. Contracting Carriers

Under Article 39 of MC, *contracting carrier* refers to the carrier who makes a contract of carriage with a passenger or consignor or its representative. China Southern Airlines had a code sharing agreement with Malaysia Airlines, according to which the other code of MH370 was CZ748[5]. Therefore, if the passenger bought a ticket for CZ748, the contracting carrier would be China Southern Airlines in MH370 cases.

It is the same case for other airlines that share the code with MH370. Under Article 45 of MC, the claimants in MH370 cases could make their own options to bring the action against the contracting carriers or actual carrier, or both of them, but the carrier brought to trial shall have the right to request the other carriers, if any, to participate the trial. In the case where the missing passenger bought a ticket for MH370, Malaysia Airlines would be the only qualified defendant carrier in Court.

B. Actual Carrier: MAS/MAB

Even if the cause of MH370 accident has not been figured out so far, it is clear that Malaysia Airlines is the actual carrier of MH370 or any other code-sharing flights. Malaysia Airlines shall bear the *joint* liability with other contracting carriers if any. Article 21 of MC regulates two-tiers liability regime, which requires Malaysia Airlines to undertake no-fault liability below 113100 SDR (this number may change in the future). But for damages exceeding that number, doctrine of presumption of fault applies, according to which only if Malaysia Airlines could prove that itself or its representatives do not have fault for the damage, or such damage was solely due to the fault of the third party, Malaysia Airlines could be excluded from liability off the part upon 113100 SDR. At current stage, as the cause of MH370 accident has not been cleared, it is impossible for Malaysia Airlines to overturn the presumed fault on it, which is a good point for the claimants. However, Malaysia Airlines could consider to apply for the suspension of the action until the accident cause will be established, according to Item 6, Article 150 of *Civil Procedure Law of China*, which reads as follows: "Other circumstances requiring suspension". If Malaysia Airlines overturns the presumed fault on it successfully according to Section 2, Article 21 of MC, it is suggested for the claimants to add the party that caused the accident in time. However, Malaysia Airlines would definitely be the proper defendant in any case.

It should be noted that the liabilities of *old Malaysia Airlines* (Malaysian Airline System Berhad, MAS) has been decided to be transferred to the *new Malaysia Airlines* (Malaysia Airlines Berhad, MAB), according to Section 29, *Malaysian Airline System Berhad (Administration) Act 2015* (Law of Malaysia Act 765). However, this Act only deals with the transferring issues between two specific companies, and the contents thereof is more similar to the agreement on the distribution of right and obligations in private law. Therefore, Beijing Rail Transportation Court may not recognize the legal effect of liability transferring clauses before the creditors (claimants) in MH370 cases accept that transfer. Bearing in mind the fact that the accident and liability were occurred during the time of MAS, MAS shall be the proper defendant in MH370 cases, before it is de-registered. In addition, according to Article 44 of *General Principles of the Civil Law*, which regulates "when an Enterprise as Legal Person is divided or merged, its Rights and obligations shall be enjoyed and assumed by the new legal person that results from the change", the claimants shall be allowed to claim MAB as co-defendant for joint liability.

C. Other potential defendants

Before the cause of accident of MH370 is determined, the question whether there are other proper defendants in addition to actual carrier (Malaysia Airlines) and contracting carrier remains open. However, for the benefits of claimants in MH370 cases, the litigation strategy could be listing all relevant entities as defendants, such as the manufacture of aircraft (Boeing) and engines (Rolls-Royce), Kuala Lum-

pur International Airport, and the insurer of MH370. If MH370 accident is proved in the future to be connected with the defective products, the claimants could also try to apply the laws where the act of tort occurred, i.e., the location where the defective product in question was produced or designed.

Conclusion

Unfortunately, MH370 is still missing, but the progress of legal remedy should be continued as usual to end the unstable status concerning the interests of the missing passengers' families. For that purpose, such civil procedural issues as the Choice of Law and Primary Litigation Participants shall be cleared in theory in advance, the sooner the better, so as to promote the civil procedural progress of MH370 cases.

First of all, the applicable laws in MH370 cases should be determined between relevant international conventions and national legislations, in particular the Chinese law. According to Article 142 of *General Principles of the Civil Law* and Article 55 of MC, the sequence of law application should be as follows: MC, WC and its relevant protocols, other relevant international conventions, and Chinese or foreign national laws determined by the Chinese private international law. Whether claims in MH370 cases are based on contract law or tort law makes big difference to the result of the application of law under Chinese law. However, no matter which choice is made, the application of MC would remain unaffected.

Secondly, the scope of plaintiffs (claimants) in MH370 cases could be settled down at current stage, but that is not the case for defendants. As the passengers of MH370 have been missing more than two years ago and there are few possibilities for them to survive, the parties being supported by the missing passenger in law and close relatives of the missing passengers are the qualified claimants. However, the above qualification as claimant has to be established on the accomplishment of special procedure of death declaration of the missing passengers. As to the scope of proper defendants, it is still unstable as the cause of MH370 accident is still a mystery. But Malaysia Airlines, as the actual carrier of MH370, is one of the proper defendants in MH370 cases.

At last, let us continue to pray for MH370…

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[1] *The paper is only for academic research, without any official opinion of lawyers on MH370 cases. The authors thank Professor Alfredo Roma for his valuable comments on this article, but the responsibility remains on the authors.*

[2] *Giemylla/Eshmid (editors), Montreal Convention: Comentary (Kluwer Law International, 2006), Article 29-3.*

[3] *As Chinese contract law does not support the claim for moral damage, it is suggested for the claimants to choose legal basis on tort law as litigation strategy.*

[4] *Reply of the Supreme People's Court to the request on whether the death compensation could be viewed as legacy, No. 26 [2004] of the Civil Division I of the Supreme People's Court.*

[5] *S.N. Strutt, Out of the Bottomless Pit (Paragon Publishing, 2014), at 15.*

AVIATION

Body Scanners within Airport Security Systems: Security or Privacy Issue?

Ridha Aditya Nugraha*
Jinyoung Choi**

Abstract

It is interesting to see how airports have treated airline passengers, especially after the 9/11 tragedy and with rising apprehensions and tensions due to the potential for radical attacks and terrorism. Technology is being used by airports to ensure that the highest security measures have been taken. The invention and utilization of the full-body scanner is considered one of the solutions. In order to provide security and be more efficient, airports are relying on these innovations. Some airports in the European Union and United States already use full-body scanners as their main standards. However, this new technology poses a potential threat to passengers' privacy. A high level cyber security system together with a legal framework on data protection to secure the processed data must be established and well maintained. Not to be forgotten, an important issue which must also be addressed is whether an infringement of a natural person's fundamental rights under the European Union legal framework exists.

Increasing Security Threat to the Airline Industry

The tragic September 11 attacks have raised more concerns on airport security all over the world. Many countries have reacted by maximizing their airport security in order to protect their citizens. As one way to enhance airport security, states have chosen to privatize the airport security screening process. One of the reasons why states privatize airport security is to ensure they receive sufficient insight to maintain and enhance the security level[1]. Although territorial borders between countries used to be the state security point, unknown borders which exist at international airports should be considered as a new type of security point.

Threats to airport security are also being innovated. In 2001, Briton Richard Reid attempted to blow up a flight from Paris to Miami with plastic explosives hidden in his shoes[2]. In 2009, there was an attempt to blow up the Northwest Airlines Flight 253, which is infamously known as the Christmas Day bombing attempt.

*Air Power Centre of Indonesia. Member of German Aviation Research Society. The views expressed are purely those of the author. Comments could be addressed to r.a.nugraha@umail.leidenuniv.nl

**Ph.D. candidate at the International Institute of Air and Space Law, Universiteit Leiden. Comments could be addressed to jinyoung.choi@live.nl

Umar Farouk Abdulmutallab managed to outwit the security system at the Amsterdam Schiphol Airport in the Netherlands, and smuggled 80 grammes of highly explosive PETN in his underwear[3]. However, his attempt to bomb Flight 253 failed and he became enveloped in a fireball until four passengers extinguished the fire and restrained him[4]. As the bomb was liquid, metal scanners, the prevalent technology at that time, would never have been sufficient[5].

These attempts, and in particular the Christmas bombing attempt, have raised global consent that airport security technology and security management systems must develop, especially within European global hub airports such as Schiphol, Heathrow, and Frankfurt[6]. Underdeveloped or poorly maintained security systems would trigger the loss of customers, including airlines, passengers, shops and restaurants. A huge amount of investment and economic development at airports is at stake.

The security threat to airlines, especially to their aircraft, is more serious compared to the threat in the past. The aftermath of the September 11 attacks has shown that aircraft can be used as a mass destruction weapon, terrorizing people on the ground. The fact that air transport gains more media attention than any other transportation mode makes it a main target for radical attacks or terrorism. In comparison, trains and buses have a limited reach as they can only follow their track or stay on the road. On the other hand, a hijacked aircraft can attack anything in the air, on the ground, or in the ocean. Considering the importance of airport security, airport stakeholders should always be aware of the most current developments in security technologies.

Full-Body Scanners: The Last Guardian

Today we are witnessing a radical shift in security at airports[7]. Security threats have evolved from older stories of passengers hiding a gun or knife, to passengers hiding explosive liquid or powder. The combination of explosive liquid and powder poses more problems than a gun or knife. It is therefore evident that the use of full-body scanners is a solution for fully screening everyone to detect threats that traditional metal detectors could not detect without slowing down the security check process. Full-body scanners need only take a few seconds to identify potentially prohibited items located on the passenger's body, while other modes could take longer.

There are two types of full-body scanners: the millimetre wave machine and the backscatter machine[8]. The former works by sending radio waves over a person and producing a three-dimensional image by measuring the energy reflected back, while the latter uses low-level X-rays to create a two-dimensional image of the body[9]. Both types of full-body scanners aim to detect what only a physical pat-down check could turn up, but what a metal detector would not find, including plastic or chemical explosives and non-metallic weapons in a pocket or even strapped to one's body. Even on rare occasions, guns, knives, and other metallic objects set off a metal detector, which should not happen[10]. It delivers a very strong message to airport authorities that there should be developed methods to prevent such unfortunate events.

Within European airports, the use of full-body scanners is optional, not mandatory[11]. Following the advent of their usage, the European Union (EU) Commission introduced a legal framework dealing with the use of security scanners, namely Regulation No. 1141/2011 and Regulation No. 1147/2011[12]. The use of any types of security scanners must be in compliance with the legal framework dealing with various issues, such as protection of EU classified information[13] and health and safety issues of the airport employees[14] and passengers[15]. The establishment of these legal frameworks prove that high level standards have been set up within the EU.

However, Europe, especially EU Member States, has started debates on the enforcement of this regulation with regards to the use of full-body scanners. The Netherlands, which failed to detect or prevent the Christmas Day bombing attempt, agrees with the use of scanners, as does the United Kingdom. On the other hand, the Germans call the body scanners *nactscanners*, meaning a virtual strip search[16]. Berlin had strongly expressed the fear when the regulation was still a proposal that German authorities may be transformed into the 21st century 'Peeping Tom'[17]. Most likely Berlin's reaction has something to do with its past, when citizens were living 24/7 under Stasi reconnaissance. Thus the country is trying to prevent something similar from happening again.

Passengers' health issues are also a concern in the use of the full-body scanner, due to its side effect on human health. It is estimated that among the 750 million security checks for 100 million airline passengers per year, six passengers might get cancer due to the use of old-fashioned X-ray scan technology[18]. There is also a chance that the use of full-body scanners could damage passengers' DNA, which can also trigger cancer; relevant research is still in progress[19]. Hopefully research and following developments will advance technologies in a safer manner for the human body.

With regards to privacy, new technologies have been developed to decrease the invasion of passengers' privacy. Schiphol Airport has introduced software to reflect any findings from original scanned body images on standardized images, and renamed full-body scanners "security scanners" in order to avoid potentially sensitive privacy issues[20]. The name is a response to growing concerns on the right to privacy of persons with physical particularities, which they may not want to expose to anyone, and of persons with religious reason[21]. There was a case of Muslim woman who were rejected boarding at Manchester Airport after she refused to be scanned citing a religious reason. Even Pope Benedict XVI expressed this machine may violate human dignity[22]. In the UK, it has been recognized that the utilization of full-body scanners on children could violate the UK's Child Pornography Laws[23]. Thus a comprehensive security scanner along with the mentioned software should be used as the last guardian for airport security and also aircraft.

Does Privacy Still Exist in Airports?

Privacy is a very vague term. The Merriam-Webster dictionary defines it as freedom from unauthorized intrusion[24]. Simply speaking, privacy means certain areas of one's personal life which are hidden from unwanted view[25]; or elimination of body details[26]. The latter definition seems more suitable when describing the current situation in airports. However, not every country recognizes the importance of one's privacy[27].

This leads to the situation that airport security standards in states where the importance of privacy is not recognized will lack concerns for personal privacy when it comes to security standards.

In the United States (US), there are debates on the right to privacy and the right against unreasonable searches and seizures in airport security. Security reasons may present an exception to these rights, as long as the methods of searches and seizures are reasonable, but there is uncertainty in the definition of reasonableness[28]. Passengers in the US are given a chance to express consent, by deciding to board the aircraft before walking through to the security check[29]. Thus the passenger's 'free' choice is seen as consent[30].

The limits of a reasonable search may depend upon the involvement of physical contact in the inspection. Preferences may vary between a full-body scanner and pat down measures depending on one's personal nature or experience. Therefore, passengers are given a choice to choose one of the measures. However, passengers often are not provided with sufficient chances to choose between the two measures, especially within jurisdictions where the right to privacy is less recognized. Airport ignorance is one main cause. Another main cause is none other than the commercial aspect, especially the pressure to maintain the high level of airport efficiency.

Promoting passengers' right to privacy may be achieved simply by placing an announcement before the security check. The problem is that airports may not be in favour of such a promotion due to operational and management efficiency issues. The more passengers are made aware of their right to choose, the slower the entire security check process may become. Further, higher operational costs of the airport would be required, for instance in order to hire more employees and maintain a sufficient level of training for these employees related to security check procedures.

Within the competitive atmosphere following the airline industry liberalization, there is no doubt that airports are more afraid of losing their major clients - airlines, which contribute to airport profit and play a vital role in promoting the airport's reputation. In other words, passenger privacy may be lessened to keep the efficiency level high.

Notwithstanding, passenger's privacy in airports, which is at stake, must be well guarded. This could be achieved by raising public awareness on passengers' rights to privacy.

Potential Privacy Concerns at Airports in International and Domestic Human Rights Law

Article 12 of the United Nations' Universal Declaration of Human Rights[31] states that no one's privacy is subject to arbitrary interference and recognizes one's right to be protected by law against such interference or attacks. The Declaration of Human Rights does not provide a definition of one's privacy right, nor is there consensus on a definition of privacy[32]. Therefore, it is required for signatory states to interpret the term according to Article 31 of the Vienna Convention on the Law of Treaties[33]. In the European Charter of Human Rights there is a provision which ensures the right to respect one's private life, which is interpreted as privacy[34].

As provided, international treaties do not provide a specific definition of privacy in respective provisions. This may trigger difficulties in applying the concept of privacy to the use of full-body scanners at airports.

Nevertheless, in general, national regulatory authorities do recognize one's privacy and reflect more detailed definitions in their provisions. As an example, in Australia, the right of privacy may be categorized as four different concepts: information privacy, bodily privacy, privacy of communications, and territorial privacy. Among others, territorial privacy is related to the use of full-body scanners at airports. The Australian Law Reform Commission defines territorial privacy as a right not to be interrupted in domestic or public environments by searches, video surveillance, or ID checks[35]. The use of full-body scanners therefore falls under the scope of territorial privacy, which should not be interrupted.

The right of privacy is recognized also in the United States. The US government mentions that privacy is that one's private information is collected, used, stored, protected, and shared, and that one is able to determine how the information is shared[36]. According to the aforementioned understandings of both states, everybody has the right to enjoy privacy. However, such general understanding on privacy is not fully applied to the use of full-body scanners at airports.

Current Domestic Practices within Airports

A former guard from a private security company pointed out that the role of guards within airport security is that they are only trained to respond to the beeps emitted by metal detectors instead of observing people's behaviour[37]. Human factors, including the sense for security awareness, are more crucial than any technology development. Airport security guards as humans have instincts which could allow them to be more 'aware' than those machines, for example in the ability to recognize someone's gestures.

In the US, common comprehensive security measures consist of biometric identification, bottled liquids scanners, explosive trace detection, and lastly full-body scanners, also known as Advanced Imaging Technology[38]. Thus do not be surprised if they scan everything, namely your fingerprint, iris, hands, cabin baggage, and your whole body. By passing these checks, passengers get really naked.

In Israel, a different method has been used. The country recognizes privacy through its Basic Law[39], although with an exception in case the action benefits the country[40]. That provision becomes the ground for personal interaction and group profiling methods which are encouraged within Israeli airports due its long history of terror attacks[41]. The security check process is started even before entering the airport, when cars approaching Ben Gurion Airport are approached by trained guards asking one or two questions on their visit; no doubt a nervous response, or one revealing an Arab accent, could trigger further scrutiny even before entering the airport[42].

Two tracks are available at Ben Gurion Airport. The first is for Jewish Israelis, who usually will be waved through after a brief conversation. The second is for Israeli Arabs and non-Jewish visitors who will be taken aside for lengthy questioning with thorough luggage and physical checks[43].

Besides the passengers' ethnicity, religion, and nationality, their tone, gestures, behaviour patterns, travel information, and intelligence reports also play a role when conducting profiling and deciding whether the passengers need to be further screened[44]. Despite Israeli Arab citizens' protests of discrimination by Israeli polyglot security agents and the absence of full-body scanners in Ben Gurion Airport, their successful methods deserve recognition; in 1986 they were able to prevent a bombing attempt when a bomb was planted within the terrorist's girlfriend's bag targeting the El Al 016 flight to London Heathrow Airport[45].

South Korea is one of the countries which has supported the use of full-body scanners since 2010. A noticeable point is that national authorities have enacted a legal framework to validate the use of full-body scanners at airports. There were however objections brought by the National Human Rights Commissions of Korea and various non-governmental organizations. Arguments against the use were mostly of their low efficiency in defecting potential terrorists or that there was very thin legal basis for the introduction of their use, but usage obviously may harm one's privacy and freedom, as well as the potential for discrimination on nationalities and religions[46].

Currently, full-body scanners may be used to check only those people who have been analysed as a threat to the safe operation of aircraft and safety of other passengers, or who have been reported by international or domestic authorities. If these subjects object to going through the full-body scanners, the subject's body must be inspected thoroughly directly by airport security officials[47]. The airport operators should facilitate and operate full-body scanners screening the detected result on fixed artificial images of human bodies without detailed image analysis. This should enable the on-spot security officials to confirm the dangerous or suspicious part of the body.

With regards to Japan, a full-body scanner underwent a trial operation for a twelve-day period at Kansai International Airport[48]. The Ministry of Land, Infrastructure, Transport and Tourism of Japan stated that four different types of scanners would be tested until December 2015 at other major airports in Japan. As in Korea, Japan did a trial operation of a full-body scanner which showed body shapes in 2010, but due to the issues of invasion of privacy, the use had stopped. The newly developed scanner to be tested was more enhanced and partially solved the problem by not defining the passenger's body shape on screen. Moreover, radiation levels of waves from the scanner are lower than ones from usual cell phones, so it decreased the concerns of the hazardous effect on human health[49]. The ministry planned to install the scanner at all international airports by 2020, precisely before the Tokyo Olympics.

The situation in Indonesia, which is the biggest country with rapid aviation growth in ASEAN, is another story. Outside of Soekarno-Hatta International Airport, there are airports which are still without proper airside security fence installments[50], or even have no airport security fence at all[51]. There was a case in which someone snuck out into the aircraft wheels in Sultan Syarif Kasim II Airport, on the Pekanbaru-Jakarta GA 177 flight[52]. In cases such as this, any security measures towards the passengers with their cabin luggage at the airport become useless, since someone could put dangerous goods into the aircraft from the other side of the airport. This is more important than debating what kind of machine should be used within Indonesian airports.

Fortunately, since 2015 the Indonesian Ministry of Transportation has announced its priority to build airside security fence in all Indonesian airports, then follow by installing metal detectors and X-ray scanners[53]. From that official announcement, it could be concluded that currently there is no room for full-body scanners in Indonesia.

The burden lies with the airport management authorities to authorize and supervise the professionalism of their employees. Any sharing of scanned images online cannot be tolerated.

From Stoma Patient to Peeping Tom(s)

What happened in Nigeria really has shocked the world. The full-body scanners used within major airports in Nigeria were being abused by airport security staff members from the Federal Airports Authority of Nigeria (FAAN), who used the machines to watch naked body images of female passengers for fun[54]. In 2010, it was discovered that during off-peak periods the Nigerian airport security officials would often stroll from a cubicle located in a hidden corner on the other side of the body scanner[55]. It seems that they were being the 21st century's Peeping Tom, substituting the digital version for reality.

Passengers may become victims of the enhanced technology of full-body scanners at airports just because they lack awareness on their own privacy rights. For instance, employees behind the scanner's cubicle do not always have the same gender with subject passengers. This can lead to another debate over gender or religious issues. Considering this posed danger of the use of full-body scanners to human dignity, the industry, governments and also the International Civil Aviation Organization (ICAO) must seek measures to prevent infringing upon relevant human rights.

Those who are under medical treatment also have a high potential for their privacy being infringed. Stoma patients could trigger a beep when passing through a metal detector or full-body scanner, which is more sensitive to whatever the device is made of. The normal reaction from the security staff is asking and investigating what triggers the beep. When the answer comes out, most likely the passenger, being watched also by other unknown passengers, will be subject to embarrassment. In the Netherlands, the Dutch stoma patients' association has agreed with the airport security authorities that the patients may identify themselves beforehand, so that the patients will be treated in a more prudent way[56].

Ironically, this Dutch method of announcing: "I am a stoma patient"[57], infringes on their privacy and medical records from the onset. Similar privacy concerns also arise in other health cases, for example for people with pacemakers following heart transplants, and those with other diseases which need devices to be implanted within the human body. Full-body scanners should have a technology identifying a medical device placed on or in the human body, which would then be followed by a professional airport security treatment which respects privacy.

The case of US Marshals was interesting in considering human factor issues. A full-body scanner operator at the security check-point of a Florida court house collected thirty-five thousand body images of public servants and citizens, most likely illegally[58]. A gap from the machine allowed saving images for further testing, training, and evaluation purposes, but they were being used for another purpose.

Even though the agency announced that such capabilities are not normally activated when the devices are installed at airports[59], it does not mean that bad airport security staff could not turn these capabilities on.

To prevent passengers' from feeling as though they are being haunted by Peeping Tom surveillance, in the EU, passengers are entitled to opt out of going through a body scanner[60]. Passenger profiling could become the other solution. This method has been actively used in Israel with great success. Following Israel, Australia has combined profiling methods with intelligence data collected from the Customs' Enhanced Passenger Assessment and Clearance Program[61]. The program, since its initiative in 2010, has cost USD 24.9 million[62]. Such a high price for keeping the security high and protecting passengers' privacy and even further, their dignity.

Success implementing profiling methods could be combined with limiting the usage of full-body scanners only for specific destinations where the existence of threats has become real. For example, security measures for flights to the US and UK could be tightened by requiring all passengers, or those who do not pass a metal detector test (if any), to pass a full-body scanner, while passengers flying to other destinations could still opt out of passing through the machine.

Promoting Passenger Privacy and Data Protection Awareness

A legal framework on data protection does not exist in every state. In the EU, data protection is regulated under Directive (EC) No. 46/1995[63] and Regulation (EC) No. 45/2001[64]. However, there is no specific legal framework in relation to airline passengers' personal data protection. Generally, the purpose of this legal framework is to protect consumers from their personal data being used for commercial or any other research purpose without their consent. Furthermore, the legal framework becomes the ground for airports to set up a checklist of what to do and what not to do while screening and processing the passengers' images.

While the Europeans can be glad to have a harmonized standard on data protection and privacy, unfortunately, the same situation does not appear in other parts of the world. For example, Indonesia, as one of the countries with rapid growth of aviation industry, still has not enacted any legal framework on privacy; currently the Indonesian Data Protection Law is being processed within the House. Thus, legally speaking, there should be no high expectation for the highest respect for privacy within airport security measures. The latter depends on public pressure and awareness of human dignity or even the Good Samaritan Principle.

Technology inventions in the form of automatic processing could become one of the solutions to promote passenger privacy. The idea would be to gather databases on medical and any other life supporting devices so that when they appear on the full-body scanner screen, the airport security staff would have special procedures for handling the situation privately. Children must also be well protected and prioritised. There is the potential that full-body scanners could frighten children and cause trauma, thus there must be special procedures for parental or guardian accompaniment. This issue has even escalated into the potential for a child pornography issue within some states[65].

Body Scanners and Cyber Security: Does it Ring a Bell?

Considering how powerful a full-body scanner can be when being used properly, terrorists would probably like to distract this system in order to successfully launch an attack on the targeted aircraft by passing through with the dangerous items. The distraction itself could be conducted using cyber attacks into the machine or airport security server aiming to create loopholes. In our digital era, cyberspace has become a new battleground for the terrorist which poses a potentially catastrophic threat for airport and aviation industry stakeholders as well as beneficiaries[66].

As one of the worst scenarios, free or pre-paid Wi-Fi within an airport could potentially become the gate for cyber attacks, paralyzing or damaging airport security systems, in this context full-body scanners. Old-fashioned servers and their security systems could also become another gateway for the threat. It is time for ICAO to accept and realize that aviation safety also relies heavily on cyber security, thus a call for amending ICAO Annex 17. The last amendment was adopted by the ICAO Council on 7 December 2001 in order to address challenges posed to civil aviation by the events of 11 September 2001.

International organizations such as the Airports Council International (ACI), International Air Transport Association (IATA), International Federation of Air Line Pilots' Associations, and International Criminal Police Organization (ICPO-INTERPOL) must also be invited to provide their input. There is no room to underestimate and further delay the realization of how dangerous cyber attacks could be.

Conclusion and the Way Forward

One of the main questions in regard to the use of full-body scanners is a definition. Is the ultimate airport security check equal to undressing passengers? The definition may be dependent on states' interpretation on privacy and human rights.

The use of security machines, from old-fashioned metal detectors to newly invented full-body scanners, has become common. Sad to say, the full-body scanners in Nigeria are more useful for spying on female passengers than preventing terrorism attacks like the Christmas Day bombing. Without a doubt, full-body scanners can be considered as the Peeping Tom of the 21st century. Fortunately, an alternative method, which does not by any means reduce the security level, in this case profiling, is also used in Israel with great success.

However, implementing Israeli Ben Gurion Airport's successful profiling method is not that easy, considering that each airport has its own characteristics based on national law and its citizens' standard on privacy, also not to be forgotten, traffic volume. While both international and domestic passengers' traffic volume in Ben Gurion Airport is relatively small, only around fifteen million in 2014 and 2015[67], it was between three or four times higher in Tokyo Haneda (72,826,565), London Heathrow (73,408,489), and Atlanta Hartsfield-Jackson (96,178,899)[68]. Due to the large volume difference from Ben Gurion Airport, the question will be how many security agents with thousands of training hours are needed to implement the Israeli profiling method in global hub airports. Thus the effectiveness of machines and humans vary depending on passenger volumes, the status of airport, local political situation and such.

An efficiency issue during airport security checks also must be stressed at regional and global hubs. Sometimes airports distinguish the security check based on types of carriers, such as full-service and low-cost airlines. For example, when flying with EasyJet from Amsterdam Schiphol, passengers will be directed to gates designated for low-cost carriers. Most of the security measures are metal detectors, while the other passengers for full service carriers are allocated to gates equipped with full-body scanners. This dual security system must be further reviewed considering metal detectors usually end up in additional body checks, since they often do not know where the beeps come from, thus leading to an additional few seconds per passenger.

The urgency of having a data protection legal framework has become real. Its existence could become the ground for protecting passengers' personal data and establishing standard operation procedures among airport staff. Furthermore, cyber security must also be considered as one of the main pillars within airport security, especially considering today's reliance upon the internet.

No doubt, a balance between innovation in effectiveness, efficiency, and privacy within the airport security issue must be discovered.

Finally, recent Zaventem Brussels Airport and Istanbul Atatürk Airport attacks in 2016 lead us into further questions whether terrorists have shifted their target from aircraft to airport. If so, airport security must be expanded to points far before the airport entrance; from the parking lot or until metro stations.

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The impact of Brexit on the aviation industry

Anna Masutti*
Alessandra Laconi**[1]

The EU single aviation market is the world's largest and most successful example of regional market integration and liberalisation in air transport. As a consequence of the British referendum, the aviation industry has been forced to consider the impact of the so-called 'Brexit', which raises a number of questions and uncertainties for the aviation industry, currently regulated to a very significant extent at European level.

However, the referendum result itself does not have any immediate effect: according to Article 50 of the Treaty on European Union (TEU), a Member State wishing to leave the EU should give formal notice of that decision to the European Council to initiate the withdrawal process. Hence, notwithstanding the referendum result, the UK currently remains a member of the EU. Rules and regulations in force prior to the referendum continue to apply until any alternative arrangement is finally reached.

In particular, being a member of the EU, the UK continues benefiting from air traffic rights negotiated at EU level, which enable airlines owned and controlled by EU operators to act without restrictions on capacity and/or frequency. As a EU Member State, the UK is also benefiting from the European aviation policy with non-EU countries, such as the European Common Aviation Area (ECAA). Moreover, the EU/US Open Sky agreement enables EU and US airlines to fly without restriction to destinations on both sides of the Atlantic, establishing a mutual regulatory framework for flights between the EU and the US. This legal framework enhances competition between airlines and can result in more choice and lower fares for passengers.

If no arrangements for the aviation sector will be concluded between the UK and the EU and/or one or more individual EU Member States before the completion of the procedure established by Article 50 TEU, the consequences could be the following:

Access to the EU aviation market

Without an arrangement between the UK and the EU, UK carriers will no longer have access to the European sky within the EU and they cannot establish operating bases in other EU Member States benefiting from the provisions in effect for EU operators.

The UK could re-join the ECAA as an independent country in order to maintain access to the single aviation market. One might note that existing ECAA members will require the UK to guarantee close cooperation on aviation issues and ensure that the UK's aviation rules and standards maintain equivalence with those of the EU

[1] *Our thanks to John Balfour, Consultant - Clyde & Co LLP for his most useful opinions expressed during the drawing up of this article.*

*Partner at Lexjus Sinacta Law Firm Italy and tenured Professor of Air Law University of Bologna

**Teaching Assistant of Air Law at University of Bologna

will require the UK to guarantee close cooperation on aviation issues and ensure that the UK's aviation rules and standards maintain equivalence with those of the EU (for example, in the field of the EU Emission Trading System, ETS, or Safety and Security provisions).

On the other hand, the UK could negotiate a bilateral aviation agreement with the EU, taking the 1999 Switzerland/EU bilateral agreement as an example. Differently from the first option, such a negotiation could be very long, complicated and time consuming if the UK government would try to derogate from EU law in force.

To give one significant example, the Switzerland agreement is dependent upon the Swiss accepting freedom of movement for EU nationals, but this may be difficult for the UK to accept, at any rate without significant qualification, as one of the main reasons for the outcome of the UK referendum was a desire to limit freedom of movement.

The relationships with non-EU countries

Traffic rights between the UK and non-EU countries (Air Service Agreements) were traditionally negotiated on a bilateral basis and many still are. However, there have been increasing moves to develop and agree air service agreements on a pan-EU basis with third countries, thereby allowing airlines from any EU Member State to operate to the third country and airlines of the third country to operate to EU Member States pursuant to such agreements. These agreements also normally cover numerous other regulatory issues, like passengers' protection, environment, competition, safety regulation and security. It is evident that UK carriers currently benefit from traffic rights with relevant third countries mainly by virtue of those EU aviation agreements, rather than by virtue of bilateral arrangements. In fact, leaving the EU, the UK will have to negotiate new bilateral agreements with, for example, the US, Canada, Brazil and, pursuant to ECAA and Euro-Mediterranean Agreement, with numerous others as, for example, that one governing the relationship with Serbia.

It seems clear that fast negotiations during the two year exit period could reasonably *i)* ensure British airlines to continue benefiting from existing traffic rights with non-EU countries, and *ii)* minimise disruption. Evidently, the UK will be free to negotiate aviation agreements with other non-EU countries.

Moreover, because of the Brexit, UK airlines will not benefit of the provisions of Article 5 of Regulation (EC) No 847/2004 on the negotiation and implementation of air service agreements between Member States and third countries, which foresees that Community air carriers can be eligible for designation as beneficiaries of new Air Service Agreements with non-EU countries. UK airlines will not be allowed to take part in the distribution of traffic rights among eligible Community air carriers on the basis of a non-discriminatory and transparent procedure in other Member States. Equally, carriers from other Member States will not benefit from this provision in the UK.

Legal framework and technical regulation

The European directives transposed into UK law will continue to apply unless repealed. For example, the Airport Charges Directive was transposed into UK law in 2011, and it still continue to apply, requiring certain airports to ensure that the

charges paid by airlines are not applied in a discriminatory manner: thus it can be affirmed that the impact of Brexit on airport charges is likely to be minimal.

However, most EU secondary legislation are, by way of regulations, directly effective, and thus are not transposed into UK law, but have legal effect in the UK as a result of the EU law principle of direct effect, which will cease to apply after exit. The only UK implementation of them is by way of regulations to create penalties for failure to comply. These will continue to exist, unless repealed, but will be meaningless, as the underlying laws will no longer apply. The choice for the UK is therefore whether to re-enact some or all of the EU regulations, with or without modifications.

It is evident that, referring to the air carrier liability, uniformity reasons suggest to the UK to maintain substantially the current EU provisions, thus the British government should find a national legislative tool to arrange a domestic piece of legislation having the same contents of the recalled EU Regulations. On the other hand, other regulations ask necessarily for a negotiation with the EU, for example Regulation 1008/2008, as we will see in the next paragraph.

In any case, the European Safety Agency (EASA) technical standards are (and will remain) fundamental in relation with most aspects of safety regulation, including design and production of aircraft, their operation, flight crew licensing, and also oversight in relation with air traffic services. That is why, as part of a UK-EU air service agreement, the UK would most probably be required to continue to apply EASA regulations, but this would probably coincide with the UK desire.

Nationality of airlines

Furthermore, the question concerning the nationality of airlines has to be analysed. The airlines owned by UK companies having currently a EU carrier status are now able to operate anywhere within the EU benefiting from freedom of establishment and non-discriminatory market access.

According to Regulation 1008/2008, an airline obtains a EU carrier status when a competent licensing authority grants a licence. In order to obtain a licence, an air carrier must, *inter alia*, have its principal place of business in a EU Member State and EU Member States - and/or nationals of EU Member States - must own more than 50% of the airline and hold effective control of the air carrier, as provided for in Article 4, letter f), of Regulation 1008/2008.

Lacking a European passport agreement, an UK air carrier will not be able to set up operations in a EU Member State because it will no longer satisfy the nationality requirements for the issue of an operating licence by that country, i.e. 50% owned and controlled by EU nationals. Moreover, such carrier will have to deal with nationality/ownership and control restrictions if it wants to expand into Europe and/or wishes to establish operations in a EU Member State.

From a commercial point of view, it should be remembered that the EU low-cost carrier Ryanair, *inter alia*, has recently decided to invest a billion dollars in Italy in 2017 after the Italian government planned to cancel an increase of municipal airport taxes. The same operation – at the same conditions – will not be possible for UK carriers wanting to expand into EU Member States.

For example, in Italy, EasyJet offers a significant number of domestic routes (cabotage services) and, according to 2015 ENAC (the Italian CAA) traffic data **EasyJet is the third air carrier operating in Italy** for number of passengers per year.

If the UK is unable to gain the same air traffic rights on similar or equivalent terms as it currently enjoys, it is possible that UK based airlines could be forced to base themselves elsewhere[1]. Airlines, like EasyJet, may consider relocating or restructuring their businesses to continue to benefit from the single EU aviation market in the absence of a post-Brexit aviation deal with the EU, although they would have to be able to show that their principal place of business was in a EU Member State and that they were majority owned and effectively controlled by EU nationals in a UE Member State. Apparently, EasyJet is in talks to buy TULfly, a German company based in Hanover with the aim to have a EU base.

Consumer protection

Unless Regulation 261/2004 is re-enacted, it will only apply to UK airlines following Brexit on flights from another EU country.

Although the UK has historically advocated high consumer protection standards, it is known that the airline industry generally believes that the burden placed on the airlines is too high especially with regards to delays and cancellations caused by extraordinary circumstances.

Should the UK wish to remain in the single EU aviation market, it can be assumed that the EU would require compliance with Regulation 261/2004 whether the UK becomes a member of the ECAA agreement or enters into a bilateral agreement with the EU.

As exposed previously, the UK may thus find itself with a Swiss-type air transport agreement, which effectively applies the EU aviation regulatory framework, albeit not wholesale. But it must be underlined that not every EU-third country air services agreement requires wholesale adoption of EU regulations. At any rate, if the UK sought not to continue to apply EU aviation consumer laws, it would probably adversely impact domestic airlines' business.

Outside of pure aviation issues, most current modern English consumer legislation emanates from European law: product liability, laws governing package holidays, unfair consumer terms, alternative dispute resolution of consumer disputes, information and other requirements relating to e-commerce and online sales. The position regarding general consumer protection legislation is the same as with aviation legislation – i.e. UK laws transposing directives will continue to apply but regulations will not unless re-enacted.

Emissions Trading System

Even if much of the UK's current environmental policy is shaped at the EU level, the UK government has set ambitious emissions reduction targets of its own. The uncertain future of the UK's role and compliance requirements in EU climate change policy and the EU Emissions Trading System (EU ETS) have more immediate consequences on the aviation industry.

In October 2016, the ICAO assembly is to report to the European Commission and European Parliament on proposed measures to modify the current system to a global market-based mechanism for international aviation. While the outcome of the ICAO proposals is yet unknown, a continuation of the *status quo* could leave UK airlines in a more positive financial position than those in the EU. However, this potential reduction of costs seems to be a small gain against losing unrestricted access to the aviation market in the EU, and some balancing countermeasures could be reasonably established by the EU institutions in order to reduce the effects of the described financial advantages. At any rate, a voluntary adaptation to EU standards is likely to characterize the "new" UK policy in the ETS field.

Conclusions

The post-Brexit world will be shaped by the exit agreement between the UK and the EU. The EU's leaders have called for Britain to leave the union "*as soon as possible, although painful that process may be*" and do not want any delay in Britain's exit as it would "*unnecessarily prolong uncertainty*."

However, the process will likely take a few years, and during that time Britain will remain subject to the laws of the EU. For now, uncertainty will remain in the aviation market until Britain's exit agreement starts to take shape. As the process commences and continues, airlines, manufacturers, lessors, financiers and other participants in the aviation industry will be keeping a close eye on how post-Brexit aviation policies and procedures will impact their future and start making decisions that may seriously affect the British economy.

[1] *"As part of EasyJet's contingency planning before the referendum, we had informal discussions with a number of European aviation regulators about the establishment of an AOC (air operator certificate) in a European country to enable EasyJet to fly across Europe as we do today. […]. EasyJet has now started a formal process to acquire an AOC" a spokesperson for EasyJet said. But Carolyn McCall, EasyJet chief executive, said in an interview that "it remains to be seen whether the company headquarters would have to move" (see www.independent.co.uk, 1 July 2016). Probably, Carolyn McCall intended to say that EasyJet will change ownership and control in order to satisfy the EU reg. 1008/2008 on EU nationality of airlines, which is not necessary for the AOC, but for the EU operating licence.*

Brexit and Aviation: All Clear Now?

Barry Humphreys*

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For more information, please visit: www.aviationstrategy.aero barry@bkhaviation.com

It is now almost three months since the citizens of the United Kingdom voted narrowly, but decisively, to leave the European Union. The shock to the aviation industry was at least as great as that to any other business sector. Overwhelmingly airlines, airports and manufacturers had urged a Remain vote. Not surprisingly the immediate reaction to the result was: *now what do we do?* It quickly became evident that the complexity of the subject was such that no-one really knew the answer to this question, or indeed could come close to knowing with any certainty.

Initial panic may have been replaced by the beginnings of serious planning, but the fact remains that the UK is still a long way from being able to identify its future relationship with Europe, and this is as true of aviation as of anything else. As the London Sunday Times commented, quoting numerous Whitehall sources, the Government has made little progress in drawing up a credible Brexit plan. The new Department for Exiting the European Union doesn't "yet even have a permanent home and lacks a phone number, e-mail addresses or IT systems." In terms of putting meat on the bones of the Referendum vote, "Brexit means Brexit" is just a meaningless slogan at present.

Despite this, however, it is at least possible to shed more light on the options available. The June issue of Aviation Strategy, published within days of the Brexit result, outlined the immediate reaction to the decision. It pointed out that Article 50 of the Lisbon Treaty, launching the two-year exit negotiations, would probably not be invoked until the autumn. In fact, the timetable will probably be pushed back even further, to early next year, or even to next September if some reports are to be believed. From one perspective this is good news: it gives more time to prepare what will certainly be the most complex set of negotiations the UK has ever undertaken. But it also means more uncertainty for everyone, which is definitely not what business wants. Too much delay would also risk the next General Election in 2020 being dominated by the Brexit debate, perhaps even turning into another referendum.

It is important to remember that no matter how critical aviation might seem to us, in the Brexit negotiations it will be just one of many key sectors which will have to be addressed in detail. At the end of the day there may well have to be trade-offs between sectors, which will not be easy for Ministers. Above all, and as explained further below, it will probably be impossible to determine the final outcome of the aviation package before other major macro decisions have been taken, for example on the overall policy on the free movement of labour.

*Aviation consultant, formerly Director of External Affairs and Route Development at Virgin Atlantic Airways, Non-Executive Chairman of the British Air Transport Association and Non-Executive Director of NATS.

The macro picture is further complicated by developments in the European political landscape over the next year or so. We have already had the appointment of a new Prime Minister in the UK, accompanied by a perhaps surprising change of direction on a number of policy issues. It remains to be seen how the Brexit negotiations will be handled by the triumvirate of leading (and personally ambitious and at times mutually antagonistic) anti-EU politicians appointed to lead them, under the no doubt firm hand and close supervision of Theresa May. At the same time, the principal opposition party, Labour, continues to tear itself apart, raising the possibility that by the time of the next General Election the populist anti-EU UKIP could significantly increase its presence in Parliament, assuming it doesn't itself implode by then. And to top it all off, lurking north of the English border is the pro-Europe Scottish National Party just waiting for the opportunity to declare Scotland independent and re-join the EU.

The political picture is no clearer on the Continent. Italy continues to face a financial as well as an ongoing political crisis, with the ever present threat of a banking collapse. Spain is unable to form a new coalition government, despite two elections, and another election seems a distinct possibility. (Spain, of course, is particularly significant in European aviation negotiations because of the 'Gibraltar problem'.) As ever in the EU, however, it will be Germany and France which will be the key players when it comes to what kind of Brexit deal the UK can negotiate, and both countries face critical elections over the next year. Mrs Merkel may stand a reasonable chance of being re-elected, if she chooses to stand, but the signs are that her position will be significantly weakened. The prognosis for M. Hollande is even less rosy and defeat by the right looks likely. Even if this victory does not fall to the National Front, the anti-EU populist party will certainly have an impact on the the debate about the whole future of the EU and the UK's exit from it. There is also an election due in the Netherlands, again with a growing anti-EU party in contention, and of course across the Atlantic the US Presidential election will mean that any early attempt to negotiate a new UK/US aviation agreement will be difficult as the new Administration sorts itself out, which on past experience can take many months.

None of this is good news for anyone seeking clarity on the likely outcome of the Brexit negotiations. As the old joke goes about someone asking for travel directions, you really don't want to start from here. It is difficult to identify who the key decision-makers will be, and even more difficult to determine bottom lines. With Mr Junker and the European Commission at least notionally in charge of the negotiations from the European side, and the kind of rigid policy declarations which inevitably characterise elections, it is going to be a bumpy few months before, hopefully, calmer views emerge.

The Short-Term Impact

There is no doubt that business confidence, especially in the UK but also beyond, has taken a hit as a result of the UK decision to leave the EU. Inevitably economic forecasts differ, but overwhelmingly they point to a significant reduction in economic growth, despite some quite positive early indications. The assessment by the UK Treasury suggested that UK GDP will be some 3.6% to 6.0% lower by 2018 than it would otherwise have been.

Admittedly this forecast was produced during the Referendum campaign and has been criticised by many supporters of Brexit for being too pessimistic, but even at its lowest level it implies a substantial negative impact. Business uncertainty in a post-Brexit world was a key factor in the assessment, and as we have seen, so far uncertainty remains the prevailing preoccupation.

Air transport demand is highly susceptible to GDP growth. A significant decrease in the performance of the UK economy, even if it falls short of actual recession, combined with the continuing poor record of the Euro zone, is not good news for the European aviation industry. IATA's review of post-Brexit economic forecasts shows a likely reduction of 2.5% to 3.5% in UK GDP by 2020. This (when combined with the effect of a lower sterling exchange rate – see below) translates into a probable fall in UK passenger demand of some 3% to 5 % over the same period, with a less certain but still likely weakness in freight demand. The 1.0 to 1.5% reduction in the growth rate each year is a permanent downward shift in demand, not a temporary phenomenon to be reversed later. It comes at a time when the global airline industry has almost certainly passed its cyclical profit peak, following record high margins (for airlines) in 2015 and 2016. The direction is clearly downwards, meaning that the industry is less likely to be able to accommodate the Brexit effect painlessly.

The second immediate economic impact of the Brexit vote was the fall in the value of sterling against most other countries, and in particular against the dollar and Euro. Cheaper sterling can be good news for airlines in that it encourages tourism to the UK. However, for British citizens foreign holidays become more expensive, and for UK airlines those costs denominated in dollars, such as fuel and aircraft ownership, or Euros, such as European ATC charges, will increase. Taken together, dollar and Euro costs account for a large proportion of total airline expenditure. The net impact on individual airlines will vary from company to company, but UK-based carriers, which tend to attract a disproportionate number of UK passengers, are likely to be worst affected.

There is growing evidence of individual airlines beginning to adjust to this new economic environment. Where they are able to do so, many are seeking to reduce their exposure to the UK and switch resources to other markets. Several, including IAG and easyJet, have issued profit warnings, although Brexit was far from the only contributory factor here. (For the latest reported quarter, IAG noted a negative currency impact of Euro148 million, primarily due to the weak pound.) However, both IAG and easyJet have said that they did not expect the Referendum result to have a long-term impact on their businesses. Willie Walsh of IAG went so far as to say that “the fundamentals of the business have not changed. There is some short-term turbulence, but ultimately things will settle down.” It remains to be seen whether this is just wishful thinking. There are certainly causes for concern.

The regulatory risk for individual airlines depends partly on their route networks. In the case of easyJet, for example, some 57% of its frequencies are either international UK or domestic UK, leaving 43% operating to, from or within other EU countries. In terms of ASKs, some 35% of its output is devoted to non-UK EU internal market services. The equivalent figure for bmi regional is 33%. Ryanair may be

Irish-registered, but it serves 29 countries from the UK, only one less than easyJet. 35% of Ryanair's flights are to, from or within the UK. Wizz Air and Norwegian serve the UK from 14 and 13 countries respectively. Some 28% of Hungarian-based Wizz Air's seat capacity this year is on routes that touch the UK, but less than 4% on routes between Hungary and the UK. Three non-UK airlines, Aer Lingus, Ryanair and Germania, operate UK domestic services, but only to a limited extent; such services account for one percent of their total ASKs or less.

It is evident that the market access risks associated with Brexit are greatest for the short-haul low cost carriers. The legacy carriers almost invariably fly to the UK only from their home markets, so potentially might even gain from a curtailment of LCC competition. Ryanair has already announced the allocation of 10 additional aircraft previously destined for the UK to Germany, Poland and especially Italy. Overall the growth in Ryanair's UK flights next year will decline from 15% to 6%, representing about five million fewer seats to and from Britain than originally planned. Michael O'Leary has been quoted as saying that it is "highly unlikely" the airline will allocate new aircraft deliveries to the UK (out of 39 737-800s to be delivered during the 12 months to next March.) "We will pivot our growth away from UK airports and focus more on growing at our European airports over the next two years." Wizz Air has also halved planned capacity growth in the UK, from 30% to 15%, the equivalent of two A320s, pointing to the pound's devaluation as the main reason.

Long-haul services have similarly been affected, although probably to a lesser extent. Capacity reductions announced so far have been concentrated on UK-originating leisure routes, as one would expect. Delta and its trans-Atlantic partner Virgin Atlantic have announced a cut in UK-US capacity of 2-4%. Delta alone has forecast a $40 million reduction in its $350 million revenue earned in sterling as a result of the pound's devaluation. United will close its Newcastle-New York service, almost certainly a predominantly UK-originating route, from 6 September, and has agreed to continue to operate between Belfast and Newark only in return for a three-year £9 million subsidy from the Northern Ireland Government, having previously announced the route's closure from September. On the other hand, American Airlines has said that the impact of Brexit may actually be positive in the short term. Its former President, Scott Kirby, just appointed to the same position at United, was quoted as saying that so far "it is hard to see any evidence it's a big problem." This optimistic view seems to be based mostly on "a lot more lawyers, bankers, consultants flying across the Atlantic trying to figure out what [Brexit] means," perhaps not the most sophisticated of analyses.

Market Access

There is at present an almost total lack of clarity about the likely outcome of the Brexit negotiations, both overall and in relation to aviation. All one can really do at this stage is to list the options available. However, the preferred outcome, expressed by almost everyone in the industry, is relatively easy to identify. The status quo would do nicely, thank you, despite periodic grumblings about Brussels bureaucracy and meddling. No Member State has had a greater impact on the EU aviation regulatory regime than the UK. It was the UK, along with the Dutch and Commission, later joined by the Irish, which were the driving force behind the liberalisation of air services in Europe and the creation of the aviation internal market, and the UK has similarly been a strong supporter of much subsequent legisla-

tion in areas such as consumer protection, safety regulation, ATC reform, assistance to passengers with reduced mobility - to name just some of the initiatives. Why would the UK industry, and Government, want to change fundamentally a regime which they have fought so hard to achieve, one which has also of course benefited consumers enormously?

Unfortunately, carrying on as before does not seem to be an option. There will have to be change of some sort. The question is: how much? There will almost certainly have to be agreement on certain macro issues, not least the movement of labour between the UK and the EU, before the details of an aviation package can be negotiated. The UK Government has identified three options for a future UK-EU relationship, and each of them has a broad parallel in air transport:

- Membership of the European Economic Area (EEA), the model followed by Norway. This would bring access to the single market, but so far has also meant acceptance of the free movement of labour. The aviation equivalent would be membership of the European Common Aviation Area (ECAA).
- A specific bilateral agreement between the UK and EU, as the Swiss have. This would provide an opportunity to address specific concerns, but on past experience it would have most of the shortcomings of the EEA/ECAA approach.
- No special agreement, relying on WTO rules. For air transport this would probably mean falling back on the bilateral air services agreements which applied before the creation of the internal aviation market, if they are still legally valid, and negotiating new ASAs if they are not. However, this would only address the market access problem. There are many other challenges which would require additional negotiation.

At least superficially, the simplest approach might be for the UK to join the ECAA. This is now an enormous market, comprising 36 countries with a population of some half a billion. Furthermore, it is still growing, with the European Commission arguing that eventually it could encompass up to 55 states with a total population of almost one billion. Essentially it is a very large, liberalised air transport market covering the EU and numerous near-by countries, governed by an agreed set of regulations. However, there are serious shortcomings from the UK's perspective. To join the EAA/ECAA, Norway, for example, has had to accept the free movement of labour, hardly something likely to appeal to those in the UK who voted for Brexit. In addition, the UK would have to accept all current and future aviation legislation (the so-called 'air transport *acquis communitaire*') without having any influence on it. Again, hardly consistent with the Brexit call to “take back control from Brussels”. Finally, on past experience there would have to be some form of financial contribution by the UK to the EU budget, potentially a substantial contribution. That will appeal to the Brexiters!

The Swiss-EU agreement on air transport came into effect in 2002, one of seven sectors covered by the overall agreement. Switzerland is not a member of the ECAA, but its bilateral arrangement with the EU provides most of the same benefits. In return, however, it has had to agree to a number of conditions which, as noted above, will not appeal to UK negotiators, not least the free movement of labour.

A 2014 Swiss referendum decision requiring restrictions to be placed on such free movement may well, if implemented, mean that Switzerland will be forced to abandon the air transport agreement with the EU. On the other hand, if the EU agrees to relax the labour movement requirement while allowing Switzerland to have continued membership of the ECAA, which some argue is a possibility (but most believe to be unlikely), this could be of interest to the UK.

It should not be forgotten as well that the UK will require the agreement of the remaining EU Member States. They will be under pressure from many of their own airlines and airports to minimise any market disruption and remove uncertainty as quickly as possible. Equally, however, they will have their own competitive agendas. Some governments, such as France and Germany, might be focused primarily on the macro issues determining the overall Brexit negotiations. But others, and perhaps especially Spain, may have particular aviation concerns. For the past couple of years Spain has held up a series of important aviation initiatives, especially in the areas of consumer protection and ATC reform, because of the 'Gibraltar problem', essentially a disagreement between Spain and the UK on the extent to which EU aviation rules should apply to Gibraltar. The crown colony's economy will be very exposed post-Brexit (hence the highest pro-Remain vote of any UK region) and it seems unlikely that the UK Government would abandon its principled position now. At the same time, Spain may well dig in, especially given the current state of its domestic politics. A lengthy stand-off is not impossible.

Another option for the UK would be to negotiate bilaterals with those individual other countries currently covered by EU agreements. This would be a large job, but feasible over time. The UK negotiated a series of very liberal arrangements (at least in terms of third/fourth freedom and pricing rights) with several Western European states shortly before the creation of the internal aviation market. It is not clear whether these would automatically apply again post-Brexit in the absence of an alternative, but if they did, it would provide some reassurance to airlines. Given that the UK is the largest aviation market for most ECAA countries, they could well share an interest in maintaining as much of a competitive environment as possible. However, if new agreements have to be negotiated, there will be an argument over whether the European Commission has competency and therefore a monopoly of negotiating power for the core EU Member States.

The second largest air transport market for the UK after Europe is the US, governed by the EU-US Open Skies Agreement initially signed in 2007. Here there is less doubt about what would happen if the UK withdrew from the EU-US deal. Bermuda II is still a legal entity (it applies to air services between the US and a handful of British Dependent Territories) and would automatically govern UK-US air services again in the absence of anything else. (In fact, the EU-US agreement does not contemplate any individual European state withdrawing, but since technically it is still being applied provisionally, that should not create a problem.) Realistically, however, neither Government is likely to want to see a return to the old mercantilism of Bermuda II, despite the UK's initial lack of enthusiasm for the EU-US deal. The fact that the absence of an open skies regime would inevitably lead to the withdrawal of anti-trust immunity for their trans-Atlantic alliances would certainly mean that the major airlines would support an alternative approach. There is no obvious reason why both the UK and US would not choose to sign a new bilateral quickly based closely on current arrangements, once there is a working US Administration in place.

There is also an EU air services agreement with Canada. Here the previous UK-Canada bilateral agreement, which would presumably apply again if the UK withdrew from the EU deal, was very liberal in terms of third/fourth freedom rights and there is unlikely to be a problem in terms of market access for either side. Similar arrangements would have to be made for the non-EU members of the ECAA, but since for most of them the UK is such an important aviation market, not least for tourists, again it seems unlikely that significant problems would arise other than finding the time to negotiate so many bilaterals. In the worst case scenario there are even precedents for carrying on without an ASA, at least for a while, on a so-called *comity and reciprocity* basis, as the US and France did for several years.

The European Commission has been negotiating aviation agreements for some time with Brazil, Australia and New Zealand. In addition, it was recently given mandates to approach Turkey, Qatar, the UAE and the ASEAN bloc. Post-Brexit the UK will clearly not be part of these negotiations. Where this matters most for global aviation is with respect to the Gulf area. In the face of strong pressure, in particular from France and Germany, to take action against 'unfair' competition from the Gulf airlines, the UK has been a consistent voice urging a less protectionist approach. The absence of this pro-competitive lobby will almost certainly alter the balance of the debate in Europe and could well lead to a far more protectionist EU international policy. (See *Aviation Strategy*, May 2015.)

An additional issue is the fact that the UK, along with other EU Member States, has amended a large proportion of its global air services agreements to incorporate the concept of 'community carrier'. This means that in any UK bilateral agreement containing the clause, airlines from any member of the EAA have equal status in accessing the relevant traffic rights. Thus, French or German carriers, for example, will continue to be treated as UK airlines until every one of the relevant ASAs has been renegotiated, while UK carriers will cease to have similar treatment in EAA bilaterals from the moment Brexit takes effect. Fortunately the commercial importance of this problem is fairly small, given the relatively few airlines operating long-haul services from another EAA member.

Thus, these are some of the market access complexities created by Brexit. There are no simple answers or obvious compromises. The whole debate will almost certainly be long and very difficult to conclude until the outcome of the negotiations on the macro issues becomes clearer. In other words, the immediate future will be characterised by more rather than less uncertainty, just what the aviation industry doesn't want.

Other Regulatory Issues

There is a whole series of non-market access issues, raising problems just as complicated, which will have to be addressed to implement Brexit. These are listed below.

Airline Ownership and Control. At present an airline must be majority owned and controlled by EU nationals to be treated as an EU carrier.
If it meets these criteria, it is free to operate anywhere within the ECAA, including cabotage services within the borders of individual EU states.

Post-Brexit, this will present a major challenge to several carriers, especially those registered in the UK. IAG has a complex governance structure, as does Air France/ KLM and the Lufthansa Group, designed to ensure that BA can continue to be treated as a British airline, Iberia as Spanish, etc. Whether these structures will be sufficiently robust in the new environment remains to be seen, but there has been no serious challenge yet. However, the positions of airlines such as easyJet, bmi regional, Flybe, etc, all of which operate extensively on the Continent, are more problematical. (It is interesting that in easyJet's last Annual Report, Brexit is not even listed as one of the company's major risk factors, although "major shareholder and brand ownership relationship" is. Brexit is merely mentioned almost as an after-thought at the very end of a long list of lesser risks.)

There has been talk of easyJet applying for an AOC in another EU country. It already has a Swiss subsidiary, easyJet Switzerland SA, with its own AOC. (According to the company's latest Annual Report, easyJet UK has a 49% interest in the Swiss airline, with an option to acquire the remaining 51%.) As Aviation Strategy noted in June, the concept of establishing subsidiaries with their own AOCs to create a European network was pioneered by Air Europe in the 1980s, arguably one of the factors which led to its downfall. Nevertheless, such an approach could go some way towards solving the problem facing the likes of easyJet, but it would not address the key issue of ownership and control. Furthermore, to get an AOC from an EU Member State would require the airline to have its "principal place of business" in that Member State. This is defined as "the head office or registered office within which the principal financial functions and operational control, including continued airworthiness management … are exercised." This is considerably more than a brass plate job.

As of September 2015, the Hajji-Ioannou family so-called 'concert' party held almost 34% of easyJet's issued share capital, marginally less than the previous year. It is by no means obvious that an additional 16% of the shares are held by other EU nationals, given the company's quotation on the London Stock Exchange. According to one estimate, 54% of the airline's shares are UK held, presumably including the Hajji-Ioannou family holding which could also be classified as Greek, and a further 20% are controlled by US interests. The final numbers will be close to the critical 50% level. There have been rumours of a joint £6.4 billion ($8.4 billion) take-over offer being prepared by Aercap and Stelios Hajji-Ioannou. Aercap is a major aircraft leasing and finance company with 1202 aircraft valued at $43 billion owned or under management. Why such a company would be interested in buying a low cost airline, especially in these challenging times, is unclear. However, if it did, it would again raise questions about ownership and control. Aercap may have its Head Office in Dublin, but it is quoted on the New York Stock Exchange and ultimately is almost certainly mainly owned by US shareholders.

Ryanair, despite its extensive route network out of the UK, is registered in Ireland and will therefore remain an EU carrier post-Brexit. Or will it? It has already indicated that it might seek a UK AOC in order to continue to operate from there to the Continent. However, as of June 2016, according to its latest Annual Report, US shareholders held almost 42% of its shares. Many of the remainder will almost certainly be held by UK citizens. (One report has spoken of about 50% being UK-held.) It would clearly be a major challenge to achieve a majority EU ownership. On the other hand, there would be one piece of good news for Britain if Ryanair did decide to seek a UK AOC; it would earn additional revenue for the UK CAA.

A move by several British airlines to the Continent, on the other hand, could put severe pressure on the regulator's finances.

Wizz Air is another non-UK airline which might fall foul of the EU's ownership and control rules post Brexit. It has recently stated that 'qualifying' nationals now account for just 51% of its shares. Wizz Air is having to consider the possibility of treating non-EU shareholdings as 'restricted shares', depriving the holders of certain rights, including the ability to vote at general meetings. The alternative is to force the disposal of shares held by non-EU citizens. In either event, there is bound to be a negative impact on the company's share price, and overall Brexit can only make matters worse.

At present the only UK airline flying long-haul services from the Continent is BA's Paris-based subsidiary, Openskies, apart from some limited operations by Thomson Airways. These services might not be possible post-Brexit, but presumably ownership of Openskies could relatively easily be transferred to Iberia and the Thomson operation could be taken over by another part of the Thomson group based in the EU. However, Norwegian operates long-haul routes from the UK and could face problems in the future, even with a UK AOC. .The French-owned La Compagnie has just announced the termination of its London – New York service, ostensibly because of Brexit, but more likely a reflection of other factors.

There is one small oddity about the ownership and control of UK airlines under the EU internal market rules. When the original so-called Three Packages of liberalisation were negotiated two UK carriers could not meet the new strict ownership rules. (The UK CAA had applied a more relaxed approach, particularly to the ownership element.) Monarch was owned by Swiss interests and Thomson Airways by Canadians. These two carriers were, therefore, given a special status, as “honorary” EU citizens, so that they could be treated as EU airlines. Monarch is now fully UK owned, but the continued role of its special status is unclear. Could this unusual concept be a possible compromise for other airlines in the post-Brexit world?

Other EU Aviation Legislation. The EU has gradually expanded its regulatory influence far beyond the original internal market concept. Slot allocation, computer reservation systems, ground handling, consumer protection, the environment, safety, security, air traffic management - the list goes on and will grow further in the future. Most of these regulations are incorporated automatically into UK law and may therefore no longer apply post-Brexit. One obvious solution would be to introduce new UK legislation with identical rules, and carry on as before. Membership of the ECAA would avoid the need for this as it would come with automatic acceptance of all EU aviation legislation. However, this would presumably also involve subsequent adoption of any future new EU rules or amendments to the current ones without the UK having any influence over them. There is also the small matter of a financial contribution to the EU to help pay for the legislative work and enforcement. Some might argue that this is not what Brexit was supposed to achieve.

Aviation Strategy. As already noted, the UK has had a significant influence on EU aviation policy from the beginning, and has tended to push that policy firmly in a liberal direction. On the whole it has been an ally of the Commission in this, but not of all other Member States. This influence will be missed, and the result could be a far more restrictive, even protectionist, EU aviation policy. Currently this is probably most visible in the debate over relations with the Gulf states, where France and Germany in particular have lobbied for restrictions to be placed on those Middle East airlines which they claim are in receipt of unfair state subsidies. The Commission now has a mandate to negotiate air services agreements with the UAE and Qatar, so this problem will have to be addressed soon.

The Commission published its regulatory vision for the future last December, the *EU's Aviation Strategy*. It very much reflected the compromises needed to accommodate the different pressures the Commission is under. Inevitably perhaps the result has satisfied no-one. All six trade associations representing Europe's aircraft operators, for example, jointly described the document as lacking 'ambition'. The balance between liberalism and protectionism, which has recently been the centre of the EU regulatory debate and is seen in the Aviation Strategy policy paper, can only be destabilised by Brexit. As the Centre for Aviation Policy (CAPA) has noted: "...liberal ideals are under attack...Once the careful process unravels, the outliers can become revitalised. Vested interests re-emerge, and they are many and varied.....Protectionism is a highly infectious disease."

Air Traffic Control. The creation of the Single European Sky, and in particular the huge SESAR technical initiative, is key to an efficient future European airspace. In the words of Violeta Bulc, EU Transport Commissioner: "Delivering on the SES2+ regulation in 2016 is vital. This is the single biggest issue to be resolved in making our EU aviation market more efficient and competitive." The UK, mainly via the partly privatised NATS, has been playing a key role in these developments, which so far has been largely financed (and promoted) by the European Commission. The amount of money involved is substantial. It is by no means clear whether, and if so how, the UK will be able to continue to participate in SESAR, yet without a UK involvement the whole initiative will be greatly diminished.

NATS itself appears relatively sanguine about the future. It has been quoted as saying that "we will still have to comply with the requirements of the current regulatory targets as part of the UK-Ireland Functional Airspace Bloc (FAB); we will continue to upgrade our technologies during the 2015-2019 regulatory period, which will enable us to deploy concepts developed through SESAR that will benefit our customers and passengers. Neither will change the need for airspace modernisation in the UK." Not many would shed tears if the UK-Ireland FAB was abandoned, at least in its current form, but the leading role played by NATS in the European ANSP alliance Borealis is a different matter. As ever, funding will probably be critical. It is relevant that Norway has been forced to contribute financially in order to become a SESAR member.

The regulation of ATC charges in Europe is now closely supervised by the Commission's Performance Review Committee (PRC). From one perspective the withdrawal of the UK
from the EU won't matter as the CAA is the national regulatory body and continues formally to set charges. However, a reversion to the old, pre-PRC situation may

not please airlines, who have been critical of the CAA's more benign approach to regulation in the past (admittedly there is now a new regime in place in the CAA) and have welcomed the more robust PRC approach. Finally, the Government's plans to sell off its remaining shares in NATS has surely been scuppered, at least for the time being. It would be impossible to launch a sale without considerably more clarity about the regulatory regime which will apply in the future.

Safety Regulation. Along with France, the UK was one of the two leading air safety regulators in Europe, particularly with respect to aircraft and engine certification. To a significant extent this reflected, of course, the large UK aviation manufacturing base. The establishment of the European Aviation Safety Agency (EASA) in 2002, building on the work of the Joint Aviation Authorities (JAA), was designed to harmonise safety, airworthiness and certification procedures across the internal market, and to some degree beyond. Based in Cologne, EASA has gradually extended its areas of competency and recruited a large staff, many transferred from national bodies. It has 32 members, the 28 EU states plus Iceland, Switzerland, Liechtenstein and Norway, and some partners such as Turkey. However, as EASA is an EU body, only the 28 Member States have a vote on the organisation's governing committee (not that votes are all that common) and other members have to make a financial contribution to the running costs.

The potential withdrawal of the UK from EASA would be “catastrophic” according to ADS, the trade body for British aerospace companies; it would take ten years, it is claimed, for the UK to re-create the certification infrastructure needed. Of course, a way has to be found for the UK to continue its EASA membership in some form, but the challenges should not be under-estimated. Even if the UK were to follow the precedent of Norway's membership, it is difficult to see how its current level of influence in the organisation could be maintained, and influence is often just as important as legal access.

Airports. Airports are arguably the aviation sector least affected by Brexit. They are subject to a number of EU regulations, but nowhere near as many as, say, the airlines are. Clearly they will feel any downturn in traffic in the short/medium term. Immigration and customs facilities will probably have to be redesigned, again, if EU and UK citizens are to be treated differently to control migration, which could be expensive. On the other hand, there is the possibility of the reintroduction of duty free for international short-haul flights, which is clearly a money-maker for airports.

There is also the question of whether Brexit will affect a decision on additional airport capacity in the South East of England, a debate which has been rumbling on now for almost 50 years. It would not be surprising if some were to argue that the likely short-term downturn in traffic is a good reason to put off a decision yet again. At the same time, however, the Government is likely to want to launch some infrastructure initiatives soon to help to counter any post-Brexit economic slowdown, and the new runway project has the advantage of mostly, though not wholly, being privately financed. Whether the current state of uncertainty about the economy will make it more difficult, or the lower interest rates less difficult, to finance a runway remains to be seen.

Conclusion.

So basically it's all a bit of a mess. It is not too difficult to identify the post-Brexit outcome which most in the aviation industry would prefer, and we can list the options available to achieve such an outcome, but we are really no closer to saying with any certainty what the final outcome is likely to be. To be able to do so requires a clearer understanding of the parameters set for the overall UK-EU negotiating framework, and in particular what will happen about access to the common market and the principle of the free movement of EU citizens. Only then will it be possible to identify in any detail what will be achievable for aviation. It would hardly be surprising if the negotiations involved considerable horse trading across sectors, which in itself will create even more uncertainty. As CAPA has commented, “once the horse trading begins, there can be no certainty that other areas of trade and politics will not pollute any logic that applies in the aviation sector.” We might hope for a rational outcome, but we shouldn't necessarily expect one.

SPACE

Active Debris Removal - The Issue of Consent: Why is Consent a necessary prerequisite for active debris removal? A legal and practical approach.

Hamza Hameed*

Abstract

The space around Earth might be endless however the orbits we use to facilitate many of our everyday activities are a limited resource and mankind has been filling up these orbits with space objects since the first flight to space in 1957. The long term sustainability of the space environment is essential to ensure that space stays as a resource that mankind can utilize in the long run. Space debris is a problem that needs an urgent solution and mitigation measures alone cannot ensure that the space environment remains safe and plausible for humans to use. This paper focusses on the need for consent of the launching State of a particular space object when that space object is being remediated by another State. It considers definitional and other issues around obtaining consent and provides a practical approach for how this consent can be obtained. It further explains the importance of active debris removal and how mitigation alone is not sufficient. It then concludes with some recommendation on behalf of the author of what measures could be taken in order to facilitate active debris removal.

The Problem of Debris and the Need for Active Debris Removal

The launch of Sputnik-1 in 1957 started the saga of human beings sending objects into space, this sped up as more and more States recognized the importance and usefulness of having objects in outer space. Ever since then, mankind has been leaving debris in space and the numbers of such debris are constantly growing. Up until 2005 there was an estimated 5,000 tons of catalogued debris in orbit and now this number has risen to over 6600 tons today[1]. In terms of the number objects in space, there are around 17,000 catalogued objects which range from a few centimeters to several meters whereas the total has been estimated to be at 720,000 for objects within the range of 1 to 10 centimeters[2]. Of all of the objects catalogued in the larger category, only 1,100, which amounts to about 6%, are operational space objects[3].

Over the coming decades, space debris is very likely to become a significant problem for the international community. The reliance of mankind on space related activities is immense and loss of the ability to use space could result in catastrophic consequences[4].

*LLM Graduate - International Institute of Air and Space Law, Leiden University

If no action is taken to control the amount of space debris then this this will lead to an increased number of unintentional in-orbit collisions between space objects which will create a tremendous amount of further debris, this could very well result in the Kessler Syndrome which would make space access a lot more difficult than at present[5].

Humans rely on space for many of their essential activities *inter alia,* telecommunication, broadcasting, disaster management, agriculture and Earth observation and a loss of these satellites would very severely impact the quality of life of human beings on this planet. The Global Positioning System (GPS) for example has now become an integral part of the global economy and the day to day life of millions of individuals. Loss of navigational facilities could lead to a major collapse of global banking services, power grids, and even emergency medical services. Moreover, militaries now also heavily depend on satellite navigation technology to ensure minimal collateral damage during wartime[6]. The US Army for example has relied heavily on GPS in missions such as Operation Desert Storm and Operation Iraqi Freedom and it very easy to sustain that losing such a technology would indeed significantly impact future conflicts[7].

It is essential to ensure the long term sustainability of space. All space debris can be divided into four distinct categories: 1) Inactive payloads, 2) Operational debris, 3) Fragmentation debris and 4) Micro-particulate debris[8]. The third category is the one that poses the biggest risk as the majority of space debris comes from this. This is debris that is created as a result of fragmentation of spacecraft and launch vehicle stages due to high intensity events such as explosions or collisions, these can be both intentional like cases of anti-satellite weapon tests[9] and unintentional, like the cases of the Iridium-Cosmos crash in 2009. Despite the fact that the cause of every 1 in 6 debris generating fragmenting events is not known, the majority of such events occur due to the presence of residual propellant on board spacecraft and in propulsions based events. This is one of the reasons as to why one of the most effective debris mitigation techniques has been the passivation of spacecraft and launch vehicles at the end of their useful life[10].

As the amount of debris in orbit increases, the possibility and danger of a collision in outer space also increases. A collision between a spacecraft and a piece of debris which is larger than 10 centimetres can cause the total loss of the spacecraft and lead to the creation of thousands of more smaller pieces of debris, such a collision cannot also be shielded against. Collisions with smaller objects between 1 and 10 centimetres or smaller than 1 centimetre can be shielded against are it unlikely that such a collision will cause the complete destruction of an active satellite however this can also cause very severe damage that can result in the loss of several functions of a particular spacecraft.

Noting the aforementioned importance of space to mankind and the increasing risk posed by space debris, it is paramount that remediation measures are carried out in order to secure the interest of man in space and make the space environment sustainable for generations to come.

The Issue of Consent

The question of consent is that whether or not it is possible for one State to remove a piece of space debris belonging to another State without obtaining prior permission to do so. The law governing activities in outer space is premised on the

regime of State responsibility put forth by Article VI of the OST, and hence despite their being provisions in other bodies of law such as maritime law of salvage, in space no such analogous right exists. If a space object is non-functional and no longer being used by a particular State, this does not mean that this space object is now abandoned and is now left up to the disposal of whichever State that wants to do something with it. The international space law framework does not allow for unauthorized interception with space objects without obtaining prior consent from the State responsible for launching that space object and the removal of a space object without prior consent would lead to the committing of an internationally wrongful act on behalf of the State which went forth with the debris removal[11].

A. Legal Background

The need for consent for active debris removal (ADR) has its legal foundations in Article VIII of the Outer Space Treaty (OST), this Article gives exclusive jurisdiction and control over a space object to State of registry of the particular object. In order to better gauge the scope of this Article, it is imperative to look at certain definitions provided by international space law:

i. Object vs Debris

The space law treaties have no definition of what space debris is and at no point in time is there a distinction made between debris and object. Space object is also not defined in the treaties but Article 1(d) of the Liability Convention (LIAB) does provide that the term "space object" includes "component parts of a space object as well as its launch vehicle and parts thereof". This has given rise to much debate as to whether or not debris may be included within the concept of 'component parts' of a space object however the general consensus amongst the commentators on space law is that, barring a legally binding and separate definition of space debris, debris would indeed fall under the wide scope of space object as provided by the LIAB[12]. The significance of this classification is due to the fact that under the system of State responsibility provided for by the space treaties, a State can be absolutely liable (under Article 2 LIAB) or liable when proven to be at fault (under Article 3 LIAB) for activities related to its own space objects and if debris maintains its classification as a space object then the responsibility, and consequently the liability of States for extends to this debris.

Many definitions exist for what debris is but reference can primarily be made to the definition provided by the Inter Agency Debris Coordinating Committee (IADC) which States that debris 'are all man-made objects, including fragments and elements thereof, in Earth orbit or re-entering the atmosphere, that are non-functional[13].' The emphasis of any definition for debris focusses on functionality and hence in order to qualify for ADR, an object must first fall within the category of debris[14].

ii. State of Registry

The next key definition that must be understood is that of the State of registry as Article VIII gives exclusive jurisdiction and control of any space object to such State. The Registration Convention (RC) defines State of registry as "a launching State on whose registry a space object is carried…"[15] and henceforth it follows that one of the launching States has to be the State of registry off a particular space object. The concept of launching State is defined in the LIAB in Article I(c) as "(i) a

State which launches or procures the launching of a space object; [or] (ii) a State from whose territory or facility a space object is launched." In situations where there can be multiple launching States, Article 2(2) of the RC provides that any one of the launching States may become the State of registry of space object.

Henceforth, bearing in mind these two concepts, it is evident that under space law, the State that registers an object has indefinite jurisdiction and control over such an object and all its component parts[16] and any action on behalf of a third party would be an infringement of this jurisdiction and consequently a breach of international obligations on behalf of the party taking the action. In order to prevent this breach of obligation, consent must therefore be obtained from State of registry of the object as consent under Article 20 of the International Law Commission's Articles on State Responsibility precludes the wrongfulness of an act to the extent that the party acts within that consent.

It would be ideal if the State who has a particular object on its registry also bears the burden of removing it from orbit. Article 9 of the OST in putting forth an obligation of 'due regard' may be construed as making States responsible to not pollute the space environment and hence be responsible to remediate their own debris, such a connotation also falls in line with the 'polluter pays' principle of international environmental law[17].

iii. The Question of Ownership

There exists a distinction between ownership of a space object by a State and the application of that State's jurisdiction and control over such a space object. Article VIII of the OST grants jurisdiction in control over a space object insofar as it is 'in outer space or on a celestial body' whereas ownership is not precluded by means of this the object not being in space as for ownership, even the return to Earth of the object is irrelevant and ownership is exclusive and always retained by the State of registry.

This is particularly important when looking at the question of whether or not a State continues to be responsible for its space object once this object is no longer functional. Article VIII does not abolish the jurisdiction and control of a State over its space object once it has lost de facto control over it due to either its life coming to an end or a technical problem[18]. Henceforth, a space object cannot be abandoned by a State once its mission has ended as ownership, by means of Article VIII of the OST, is granted to the State is perpetuity and this ties all responsibility and liability for damage caused from that space object onto the State in question.

It has been suggested that Article VIII acts as a hurdle for ADR activities[19] however this is not true. Even though space law does not explicitly provide for a mechanism for a transfer of ownership of a space object, there do exist certain bilateral and multilateral mechanisms developed through jurisprudence and international law that allow for a third State to become the official State of registry of a particular space object[20]. Such a transfer of registry is all that is essentially needed for a State to be able to partake in ADR activities over a particular space object.

iv. The Inherent Problem of a Lack of Certainty of Ownership of Debris

There exists an inherent problem of uncertainty when it comes to determining the

owner of a particular piece of debris and also in trying to obtain consent for the removal of such a piece. Of all the debris present, approximately one-third is under the ownership of the USA, one-third under the ownership of Russia and one-third under that of China. It would make sense if ADR activities were conducted by these States on debris under their own register but if a third State were to conduct any ADR operations then consent will have to be obtained.

In order to determine which State an object belongs to, Article 2 of RC put forth an obligation upon launching States to maintain a formal national registry and also to inform the UN secretary General of the establishment of such a registry. However unfortunately the practice of establishing such a registry and properly maintaining it is not universal State practice. Most States do register their satellites and rocket bodies with UNOOSA but this registry does not include any further pieces that may emanate from these objects in cases of fragmentation. Although Article 4 of the RC does put forth an obligation on States to inform about the change in status of a space object, this is not practice and debris is not usually notified off. Moreover, the information that needs to be provided as part of this registration is not sufficient to track or locate an object with precision.

Henceforth, the record of objects in orbit, particularly debris has historically not been maintained by the UN but by governments and militaries. The US military maintains the most extensive of catalogue which is publicly accessible[21]. In order to be entered into this catalogue, it is required for an object to be tagged to a particular launch event and this is not the case for all of the objects that can be traced[22]. Moreover, this would be practically impossible to do for 720,000 objects between 1-10 centimeters in size as mentioned in the beginning of this paper.

Due to the vast amount of debris in space which is not attributable to any particular State, it would be highly impractical and implausible to obtain consent to remove this keeping in mind the fact that its origin perhaps may be unknown. This leads to a high degree of legal and practical uncertainty prior to conducting ADR activities.

How to Obtain Consent to Remove a Piece of Debris?

Upon drafting of the outer space treaties, the issue of debris was not considered and hence thought was not given to a mechanism of obtaining consent for ADR[23]. However, there do exists certain protocols within the treaties which can be extrapolated to suggest a mechanism to obtain consent. In particular, reference can be made to Article IX of the OST which stipulates all activities in outer space must be conducted 'with due regard' to the interests of other States, moreover, it also specifies that if the actions of a State may lead to harmful interference with the space object of another then this State must 'undertake appropriate international consultations before proceeding' and this may be done so by the exchange of diplomatic notes between States.

Keeping this provision in mind, and the provision putting forth a publicity obligation on States to inform the UN Secretary General before partaking in any space activities, one may construe a mechanism for States to cooperate in order to grant and obtain consent for ADR. This mechanism is exemplified by the flowchart below and consists of efforts to initially identify the nationality of the spacecraft in question and then to obtain permission from that particular nation:

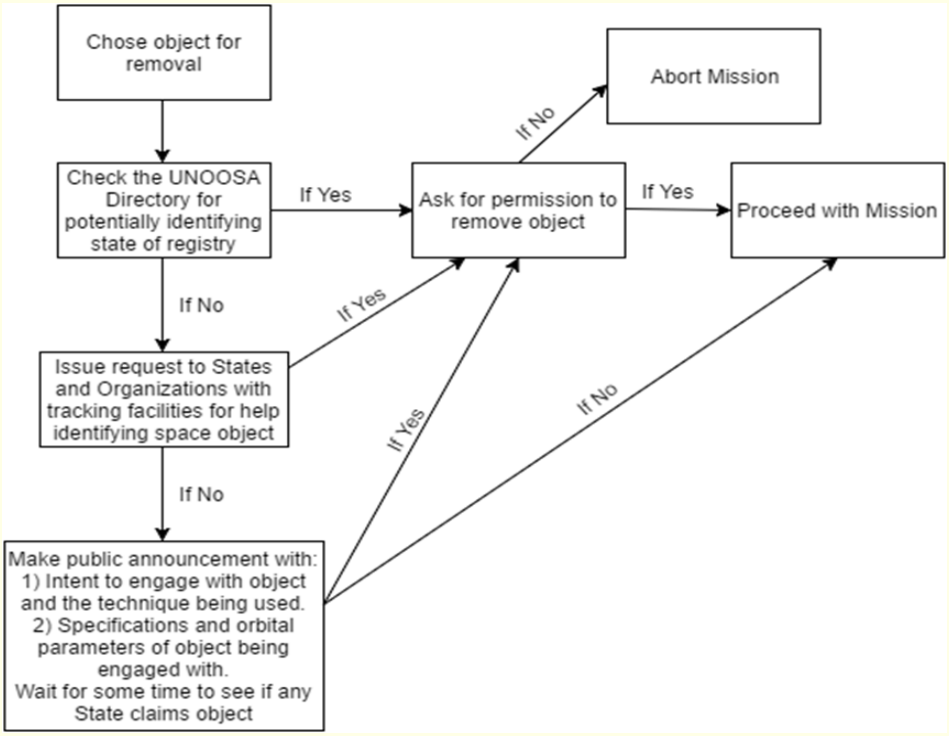

FIGURE 1: HOW TO ASK FOR CONSENT TO REMOVE A PIECE OF DEBRIS[24]

A. Additional issues with obtaining consent for ADR

The problem of obtaining consent is further complicated by other factors such as the presence of very strict export control rules for space activities or the threat of dual use of debris removal vehicles.

i. Export Control

States partaking in space activities have had a long standing history of applying very strict export control rules in order to safeguard their own national security and economic interests and these rules make ADR procedures even more difficult. These domestic export control rules put very strict restrictions on the transfer of ownership, and hence jurisdiction and control of space objects onto another State. The American regime of ITAR is the best example to consider in this context.

In order to partake in an ADR mission involving an American space object or a space object of another country with an American component on board, clearance must be obtained from under the ITAR rules and this can often be a very cumbersome and complicated process.

The presence of such strict export control rules on space technology will, according to some authors be one of the major hindrances for ADR activities in the foreseeable future[25].

ii. Strategic/Military Issues

Potentially all of the techniques under consideration for ADR have the capacity to

be also used for military purposes and this can have very significant strategic implications for States. All ADR mechanisms can be used to conduct Anti Satellite Tests and can also be used to disrupt the normal activity of any space object. The question here is one of what an ADR vehicle is capable of doing as opposed to what its intent is and the fear for such a vehicle being used as a weapon is a very real one[26].

B. Mitigation vs Remediation

There is a very clear distinction between space debris mitigation and remediation and this distinction must be stressed upon. According to the IADC 'Space debris mitigation consists of all efforts to reduce the generation of space debris through measures associated with the design, manufacture, operation, and disposal phases of a space mission' whereas 'Space debris environment remediation consists of efforts to manage the existing space debris population through active space debris removal with emphasis on densely populated orbit regions'[27].

It is important to focus efforts on both mitigation and remediation however in the long run emphasis must be placed on mitigation such that all space missions of the future must be in line with IADC Space Debris Mitigation Guidelines. These guidelines are nonbinding in nature however they have served as a basis for many States to incorporate debris mitigation measures within their national legislation. Furthermore, between 1997 and 2007, ten satellites were deorbited into parking orbits from GEO as required by the IADC guidelines. This action ensures that these satellites stay out of the GEO protected zones for at least 200 years[28].

In LEO mitigation is often done differently than in GEO such that satellites are usually boosted downwards so that they re-enter and burn up into the atmosphere. This also happens naturally such that on average at least one piece of debris re-enters the atmosphere each day[29] however this is not enough and hence all new launches must have on board enough propellant to get the spacecraft to a location such that it would not stay in orbit more than 25 years after its mission end which is what is required by the guidelines.

Conclusions and Recommendations

The size of the space industry has been growing at a rapid rate, with more commercial space launchers entering the field, the revenue generated by the international satellite networks is above 16 billion USD whereas the overall revenue from space is estimated to be around 200 billion USD globally[30]. Keeping this exponential growth in mind, it is important to ensure the long term sustainability of the space environment in order to ensure that future generations are not hindered in accessing space.

The problem of space debris needs to be addressed by means of appropriate legal regulation and through the joint of work of States partaking in space activities. Judge Sørensen commented that '… it is characteristic of our time that the new problems and circumstances incessantly arise and imperatively call for legal regulation'[31].

It is clear that mitigation for future missions is not enough on its own to solve the

problem, despite the fact that the voluntary IADC Debris mitigation guidelines have made a lot of headway in making States understand that there is a genuine need and necessity to mitigate future debris, this is not enough on its own. Based on several studies, remediation measures are a must in order to ensure the long term sustainability and utilization of space[32]. According to NASA's long term orbital debris projection model, if a minimum of five large, intact objects in LEO are removed every year for the next 100 years then the LEO environment can be stabilized over a 200 year period[33]. This too however assumes that mitigation goes hand in hand with remediation such that 90% of all launches abide by NASA's mitigation guidelines and that there are no explosions or major debris causing events. The number of years required for stabilization could be much higher if the 25 year disposal plan is not adhered to.

In order to facilitate ADR activities, it is essential to have Transparency and Confidence Building Measures (TCBMs) to reduce some of the mistrust and the misperceptions present between the various global actors. Moreover, initial ADR missions could solely focus on debris which is non-controversial in nature, it would also be advisable for debris which can be attributed to a particular State to be remediated by that State itself in order eliminate the political, diplomatic and military concerns and also nullify the requirement of consent[34].

Another added measure that could be taken to facilitate ADR activities is the implementation of national legislation to encourage debris remediation. An example can be taken from Canada's Remote Sensing Space Systems Act which puts an obligation on all licensee of space objects to provide for a system of disposal which is in accordance of the plan of disposal approved by the Minister[35].

In the absence of an international legal regime governing the matter, States are free to act when there exists a serious threat to their territorial security and sovereign integrity[36]. International law principles such as Necessity recognized by Article 23 of the ILC Articles on State Responsibility and the Precautionary Principle found in the Rio Declaration[37] which is part of international environmental law would not preclude a State from disrespecting another State's jurisdiction in space when faced with an imminent threat to one of their own space objects, especially if this object is piece of debris.

It is inherently dangerous to allow for such a system where States act in the absence of law and it is the author's opinion that some legal certainty is definitely required in order to facilitate ADR missions planned for the near and distant future. The author believes that the best way forward would be to recognize a definitional distinction between space object and space debris and only allow exclusive jurisdiction and control over the former and not the later. However at the same time, if a State is doing nothing about its own pieces of debris, keeping in mind the fact that ownership is still with the State, it should continue to be internationally responsible and potentially liable for all of the consequences of this debris.

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[1] *National Aeronautics and Space Administration, 'Monthly Effective Mass of Objects in Earth Orbit by Region', Orbital Debris Quarterly News (January 2015)x*

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Recent Supreme Court decision on the relationship between air carriers and ground-handling companies.

Anna Masutti*
Najah Zeilah**

Introduction

The Supreme Court has recently provided a new interpretation of the commercial relationship between airlines and ground-handling companies, changing its previous ruling based on out-dated precedents of the early 1990s, when airport services were provided by monopolists before the introduction of the EU Directive 96/67/EC on access to the ground-handling market at the Community airports.

According to the traditional orientation of the Supreme Court, the delivery of luggage, goods and mail by an airline to a handling company represents a contract for a third-party beneficiary (e.g., the passenger or the freight forwarder), and the purpose of such contract is the assignment and custody of luggage, goods and mail to the handler until their delivery to the recipient. Based on this approach, the Supreme Court excludes that a ground-handling company can be considered an auxiliary of the airline, as the handler manages an autonomous organization and it is not directly chosen by the airline.

The fact that the Court considers the ground-handling as a separate contract from transport means that:

- The limitation of liability set out in Article 30 of the Montreal Convention in favour of "*a servant or agent of the carrier*" does not apply to ground-handling companies;
- The airline is not liable for loss or damage to freight when it is under the care of the handler; and
- The owner of the goods – being the third-party beneficiary of the contract between the airline and the handler – is entitled to act against the handler to claim for damages.

Recent decision: Supreme Court's order n. 3361/2016.

The Supreme Court has recently changed its previous ruling, described above, taking into account the liberalization of the ground-handling services market, in line with the approach adopted in most countries. In fact, at international level, there is no doubt that ground-handling companies have to be considered as auxiliaries of airlines, according to the provisions of Article 30 of the Montreal Convention.

*Partner at Lexjus Sinacta Law Firm Italy and tenured Professor of Air Law University of Bologna
**Trainee Lawyer in Bologna

Moreover, the Supreme Court has established that the handling service cannot be regarded as a contract for a third-party beneficiary, as the ground-handling company does not exchange any proposal or acceptance with the forwarder. The handler is chosen by the air carrier and receives the goods by the forwarder according to the air carrier's instructions. In this regards, it should be highlighted that the relationship between handlers and air carriers is subject to general conditions, developed and approved by the International Association of Air Carriers (IATA), i.e. the Standard Ground Handling Agreement (SGHA). According to this Agreement , anyone wishing to send goods by air has to address its request to the air carrier, and not directly to a ground-handling company.

This new approach to the interpretation of the relationship between airlines and ground-handling companies implies that:

- The handler **is an auxiliary of the airline**, because without its support the airline cannot take charge of or redeliver the freight;
- The airline and the handler are **jointly liable to passengers** for damage or loss: in particular, the airline bears a contractual liability, and the handler a liability in tort (not having entered into any contract with the owner of the goods);
- In the event that the **Montreal Convention** applies (i.e. in case of international carriage), the handlers can avail themselves of the **limitations of liability** provided for airlines; and
- The limitations of liability are excluded where damage derives from an act or omission of the handlers' employees with the aim of causing damage or with knowledge that damage would probably result, pursuant to Article 30, par. 3 of the Montreal Convention.

The joint sections of the Supreme Court will discuss the matter.

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[1] *See, for example, the Queen's British Bench (Queen's Bench Division - Commercial Court, case Swiss Bank Corp. v. Brink's Mat. Ltd., in Air Law, volume IX, n. 6, 1986, pag. 261); numerous U.S. federal courts (e.g. the New Jersey District Court, case Croucher v. Worldwide Flight Services Inc., in D.N.J. 2000, 111-F, Supp, 2d, 501; the Illinois District Court, case Sabena v. United Airlines, in N.D. Illinois, 1991, 773-F, Supp. 1117; the New York District Court, case Mitchell c. Air Express, in S.D.N.Y., 704-F. Supp. 524); the Hong Kong Supreme Court (Hong Kong High Court, case Ericsson Ltd. and Ericsson Mobile Communications AB vs. KLM Royal).*

Air transport sector: the current EU-Canada agreement on PNR might infringe the EU fundamental rights (*Advocate General's Opinion in case C-1/5)*

Anna Masutti*
Isabella Colucci**

For the first time the Court of Justice of the European Union has been called upon to issue an opinion concerning the compatibility of a draft international agreement with the EU Charter of Fundamental Rights.

The question aired from an agreement on the transfer and processing of passenger name record data (PNR Agreement), negotiated between the European Union and Canada in 2010. Such agreement aims to allow the transfer of PNR data to the Canadian authorities for its use, retention and, where appropriate, subsequent transfer for the purpose of prosecuting terrorism and other serious transnational crimes. Furthermore, the draft agreement provides for PNR data security and integrity requirements, an immediate masking of sensitive data, the right of access to data, the rectification and erasure of data, the possibility of administrative and judicial redress and storage of the data for a maximum period of five years.

On 5th December 2013, the Council adopted a decision on the signature of the proposed agreement, which was signed on 25th June 2014, subject to its conclusion at a later date. By letter dated 7th July 2014, the Council sought after the Parliament's approval of the decision relating to the conclusion, on behalf of the Union, of the proposed agreement and on 25th November 2014, the Parliament decided to refer the matter to the Court of Justice in order to ascertain whether the envisaged agreement was in compliance with Articles 7 and 8, and Article 52 subparagraph 1 of the Charter of Fundamental Rights of the European Union relating to the respect of privacy and family life and the protection of personal data. In particular, the Parliament is uncertain whether the interference with the fundamental right to the protection of personal data can be justified.

In his opinion, Advocate General Paolo Mengozzi - emeritus professor at the University of Bologna - establishes that the above agreement could be compatible with the EU Charter of Fundamental Rights and, therefore, legal under EU law if a series of safeguards are put in place.

However, Advocate General Mengozzi highlights that the EU-Canada proposed deal, as currently drafted, fails to provide such safeguards and includes provisions that "*are contrary to the EU Charter of Fundamental Rights*". More specifically, it has been considered contrary to the EU Fundamental Rights the following provisions: i) to allow, beyond what is strictly necessary, the extension of the possibilities for processing PNR data, independently of the public security objective pursued by the agreement, namely preventing and detecting terrorist offences and serious forms of transnational crime; ii) to provide for the processing, use and re-

*Partner at Lexjus Sinacta Law Firm Italy and tenured Professor of Air Law University of Bologna
**Lawyer at Lexjus Sinacta Law Firm

tention by Canada of PNR data containing sensitive data; iii) to confer on Canada, beyond what is strictly necessary, the right to make any disclosure of information without a requirement for any connection with the public security objective pursued by the agreement; iv) to authorize Canada to retain PNR data for up to five years, in particular, for any specific action, review, investigation or judicial proceedings, without a requirement for any connection with the public security objective pursued by the agreement; v) to allow PNR data to be transferred to a foreign public authority without the competent Canadian authority, subject to review by an independent authority, first being satisfied that the foreign public authority in question to which the data is transferred cannot itself subsequently communicate the data to another foreign body.

At the end of his opinion, the Advocate General points out that it is necessary to subject the agreement to a strict review regarding the right to respect privacy and family life and the right to protect personal data. In his opinion it is necessary that, at a time when modern technology allows public authorities - with the aim to prosecute terrorism and serious transnational crime - to develop extremely sophisticated methods of monitoring the private life of individuals and analyzing their personal data, the Court should ensure that the proposed measures, even when they take the form of the envisaged international agreements, reflect a fair balance between the legitimate desire to maintain public security and the equally fundamental right for everyone to be able to enjoy a high level of protection of his private life and his own data.

MISCELLANEOUS MATERIAL OF INTEREST

Drones and Unmanned Aerial Systems Legal and Societal Implications for Security and Surveillance

Book review by Alfredo Roma* and Anna Masutti

Editor: Ales Zavrsnik[1]

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The object of this book is to offer a complete overview on the drones' world, their fast growth for dual use (military and civil) and their relevant aspects concerning legal and social implications. Special attention has been paid to privacy and data protection, aviation law, ethical, moral and political issues for drones employed in various contexts, especially surveillance and security. The deep analysis made for any single subject in a supranational vision makes this book a scientific study on the phenomenology of the multifaceted world of drones.

The introduction of Ales Zavrsnik describes the main characteristics of drones, both technical and operational, concluding that they are part of the infrastructure "Internet of things" where billions of sensors installed on satellites and other devices (like drones) survey our daily life and collect information that will be stored in many – often unknown - archives. In addition, in the last ten years drones have been identified as "killing machines" employed in war theatres. Besides the worries for the social, cultural and political impacts of drones, there is the recognition of their virtuous use to increase security, prevent crimes and improve border control, especially in respect of mass migration. These "Janus-faced" devices require situating drones in the right context, analysing them from ethical, legal, human rights and criminological perspective. This is the aim of this book.

*Member of the Advisory Council of The European Space Policy Institute, Vienna – Former President of the Italian Civil Aviation Authority and of the European Civil Aviation Conference.

The book id divided in five parts. Part I concerns the political technology of drones; Part II examines drones between privacy and security; Part III is dedicated to the military use of drones under international legal rules; Part IV designs the existing international regulatory framework; Part V analyses two particular uses of drones. Each Part is divided in a few chapters on specific matters.

Part I

Mark Andrejevic, in his chapter "Theorising Drones and Droning Theory", defines the drone logic as a "ubiquitous always-on sensor-based monitoring" for the purposes of collecting information like Twitter, Facebook, Google. These sites force us to post more information on ourselves and participate in online activities for their financial benefit. This logic affects, for example, commercial applications aiming at studying and storing information on consumers' habits; security, to justify a perpetual surveillance; pedagogy with, for example, educational applications/programs for electronic tablets, which include interoperability permitting the collection of opinions on various matters; politics, where analysis on information may offer indications on vote intentions or suggest the proper message to voters. The analysis of Mark Andrejevic depicts an Orwellian world against which it is difficult or impossible to defend.

Kristin Bergtora Sandvik develops a quite interesting study on the "moral economy" of dual technology arming police drones. In order to overcome the drones' bad reputation of killing machines, industry promotes the good use of drones like, for example, the fire fighting and law enforcement. Drones are more and more used by police, especially in the United States, to monitor the motorway to prevent traffic jam, or to chase criminals. The big question is to what extent the police drones can be weaponised? Drones could be equipped with non-lethal munitions, like the Switchblade or rubber bullets or small explosive charge. Does this mean the Police militarisation? The supporters of creating armed drones argue that this aerial surveillance would reduce collateral damages and threats to the security of police officers. However, the author says that such decision poses many moral questions that should be analysed in the international context of the democratic countries.

Part II

Promoz Gorzic examines the problem of infringement of privacy law by drones, with particular reference to the United States legal framework. Actually, a wide number of case law is reported by the American jurisprudence in relation with the violation of the IV Amendment. The landscape of these violations is anyway changing every day due to the expansion of advanced technologies, which include drones with their remote sensing devices and high-resolution cameras. The main problem is to find a balanced approach to safeguard the privacy right and the State's objective to ensure security to its citizens. The comparison of privacy protection under United States and EU law shows that US courts rely on law enforcement while the ECJ (European Court of Justice) is more concerned with the protection of privacy and dignity of individuals. However, this chapter does not add very much to the matter of privacy protection in relation with the use of drones, as in Europe it has received a large attention and has been examined from any possible angle on the initiative of the European Commission.

The complex matter of mass migration has been studied by Sanja Milivojevic in the chapter "Re-bordering the Peripheral Global North and Global South: Game of Drones, Immobilising Mobile Bodies and Decentring Perspectives on Drones in Border Policing". The problem has been examined referring to the Australian and European phenomena, which concern border security and asylum right. There is no doubt that drones can play a key role for the management of mass migration: border surveillance, high sea patrolling and SAR assistance. Their employment can sensibly reduce the loss of human lives. In addition, their use is much less expensive than using manned aircraft. Drones' border patrolling may also detect potential terrorists, drug smugglers and illegal immigrants.

The same matter has been further examined under the European scenario by Luisa Marin and Kamila Krajcikova focusing on the constraints and challenges for data protection and human rights. The presence of many actors (Frontex, member States' police and Navy, EUROSUR) for the same problem has created inefficiency and delay in rescue and reception operations. The deployment of drones by Frontex or other member States for border surveillance has been questioned for the possible violation of migrants' privacy right asking whether they can be considered a legitimate tool for border surveillance. In addition, border surveillance often demands cooperation with non-EU countries where human rights are not sufficiently protected. Certainly, the absence a European regulatory framework on drones is further complicating their use.

Part III

The following two chapters are dedicated to the military use of drones and their legal and practical use. Melanie De Groof presents a wide description of the use and legality of armed drones with reference to the United Nations Convention and the international customary law, including the international humanitarian law (LOAC). The high number of civilians killed by US drones (3,800 from 2004 to 2014 in Pakistan only) requires a serious analysis to define some common guidelines for the legal use of drones in war theatres. The author recommends the creation of an independent international body assessing the legality of drone attacks.
In the following chapter Vasja Badalic probably exceeds in theorising the use of drones to establish "pervasive power relations" to discipline a population under the US rules. In her mind, when indiscriminate drone strikes become the norms, the only solution for the subjected population is to prevent such strikes. This leads to an armed rebellion (implicit Taleban or IS?).

Part IV

In chapter 9, Paolo Mendes de Leon and Benjamyn Ian Scott present a complete and clear analysis of the existing regulations on civil drones that they prefer calling UAS. Main reference is made to the 1944 Chicago Convention, which gives a clear definition of "aircraft" (that includes UAS) and sovereignty, two concepts basically important to identify a suitable regulatory framework for drones that does not exist yet. At EU level, only Regulation 1008/2008 offers some provisions on UAS, while Regulation 785/2004 appears to be inadequate as in practice it excludes most UAS from insurance. The initiatives of the European Commission are described, although there is no mention of the Roadmap presented by the Commission in 2012, which is the most important document drawing the path till 2030 for the Integration of RPAS into the common airspace. Regarding liability and insurance it is recommended to make reference to the 1952 Rome Convention and

the 1999 Montreal Convention.

The last two chapters are dedicated to two specific uses of drones: journalism and surveillance. David Golderg stresses the great role that drones can have for freedom of expression and information in a democratic society collecting photos and videos that in public places are normally permitted. However, once again a correct trade-off between freedom of information and right to privacy has to be found.

Finally, Ales Zavrsnik takes the difficult task to come back to the criticised increase of surveillance on people and infrastructures, balanced by the resistance to drones. Zavrsnik recalls Bauman who notices that the Greek Agora was the place where public affairs were translated into individual rights and duties; today private interests of the minority are translated into public questions. The interests of majority remain private affairs. Resistance to drones is quite normal. People have always tried to resist to new technologies, especially if they come from the sky.

In conclusion, the Institute of Criminology of the University of Ljubljana should be congratulated for having coordinated this praiseworthy work offering a deep and learned picture of the drones' world.

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[1] *The Editor: Ass.Prof.Ales Zavrsnik (Doctor of Law LL.D.) is a researcher at the Institute of Criminology at the Faculty of Law in Ljubljana. He was a postdoctoral Yggdrasil fellow at the department of Criminology and Sociology of Law at University of Oslo and a postdoctoral fellow at the Max-Plank Institute Für Ausländisches und Internationales Strafrecht, Freiburg im Breisgau and a fellow of the World Federation of Scientists, Geneva. He was collaborating with the European Cooperation in Science and Technology (COST) Action "Living in Surveillance Society" and the COST Action "Cyber bullying".*

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